THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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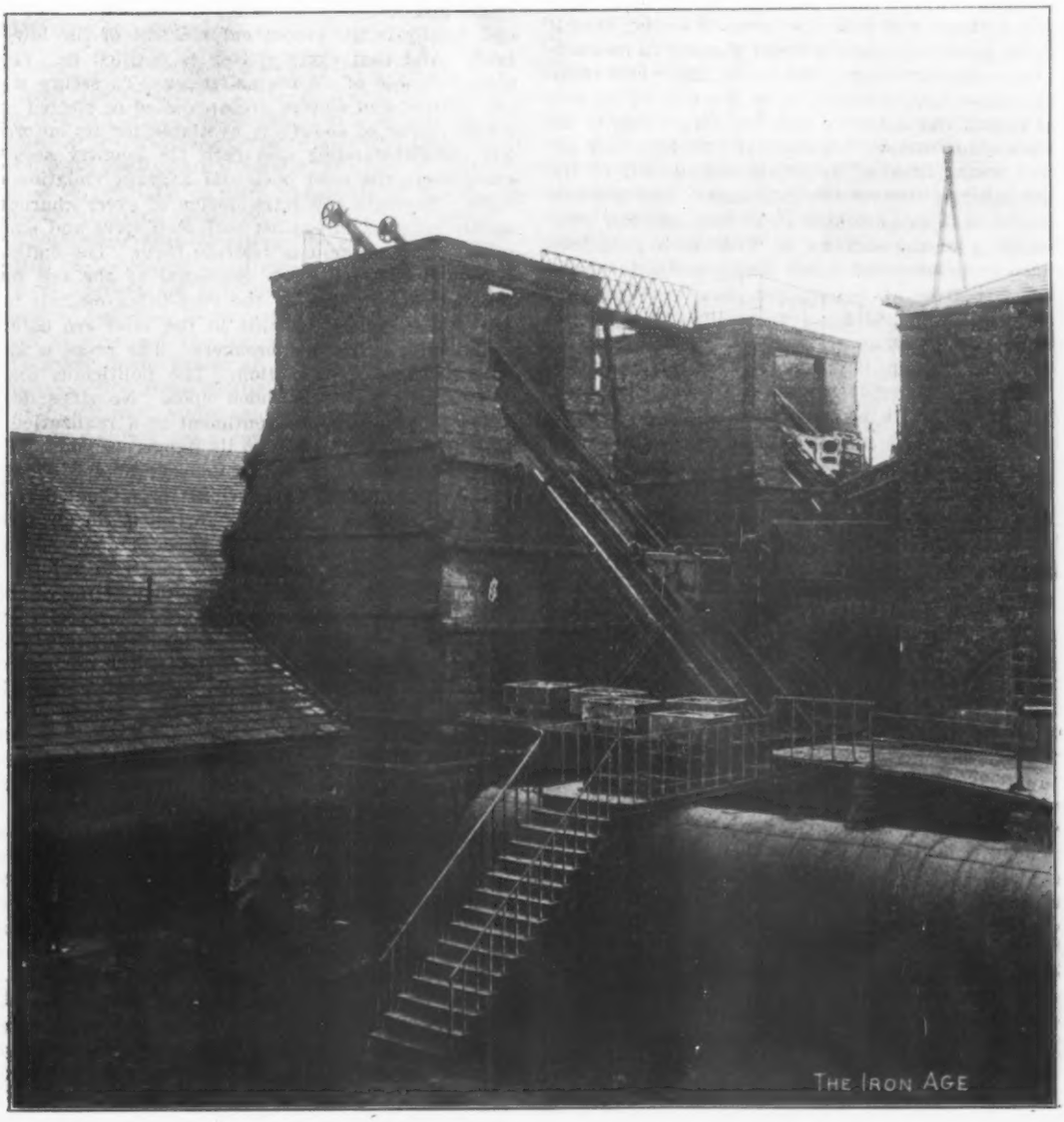
THE IRON AGE

THURSDAY, JULY 16, 1903.

An Early Furnace Charging Skip.

V. E. Edwards, mechanical engineer of the Morgan Construction Company of Worcester, Mass., sends us the following communication:

On a recent visit to England E. Windsor Richards called my attention to a photograph which interested me so much that he kindly gave me a copy. This I have had rephotographed and send you a copy by same mail. Mr. Richards believes this to have been the original inclined automatic blast furnace charging skip. You will note that one corner of the furnace has been rubbed up and clearly shows the date 1791. The automatic charging skip was added in the year 1800. The charge is brought to the furnaces in small four-wheeled iron cars which are brought in front of the skips on a transfer car on a railroad leading from the stock yard. Ore cars are then run directly into the skip cage and locked in place by a transverse bar. The skip is then elevated to the top of the furnace, where the entire car and car cage automatically dump themselves and return to their original position ready to be lowered and the empty car replaced by a loaded one. The pair of furnaces shown had not been in use for some time, but were not pulled down until a few years ago.



AN EARLY FURNACE CHARGING SKIP.

It appears from some correspondence in a technical paper that many persons are of the opinion that they can make a patented invention for their own use without incurring liability for infringement. This is a mistake; no one can appropriate an invention which is covered by a patent for any purpose, as some have found to their cost. A mechanic in the Eastern States recently wanted a boiler for a launch, and wrote for prices to the patentee of one that he liked. When he got a reply he deemed the sum excessive and constructed one himself. The inventor got information of the proceeding and the courts made the mechanic pay much more than he could have bought a boiler for from the makers of it. In this connection it may be stated that a patent covers only that form of construction which is shown in the drawings accompanying the title; no other is valid or protective. John Smith invents a certain appliance or device and patents it. Shortly after he finds he can improve upon it and does not follow the exact lines of his patent drawing; by so doing he

has lost his right to sue for infringement because the thing made is not the thing he had a title to, and he cannot mark it patented either, for the reason that ideas are not patentable, only the mechanical embodiment of ideas. If betterments occur to Mr. Smith he is obliged to take out a new patent covering the improvement.

The Anti-Boycott Movement.*

BY DANIEL DAVENPORT, BRIDGEPORT, CONN.

The recovery of the right of people to run their own business and of the right of the individual to work, whether he belongs to a union or not, is the most serious social, economical and political problem which this country has been confronted with in all its history. In comparison with it, even slavery and secession were insignificant, for those evils, in a measure, were local, and they were so opposed to the manifest interests of the greater part of the country and to the progress of society that it was possible to destroy them without shaking to its foundations the social structure. But to-day the whole country, from Maine to California, is in the grip of an evil which is eating like a cancer into the very vitals of its fundamental institutions. Industrial freedom and political and social freedom lie at the foundation of the wonderful progress this country has made. The absolute freedom of men to make contracts, to manage their business according to the dictates of their own judgment, and of men to acquire and follow trades and gainful employments free from all molestation, has been the vital force which has propelled American civilization along its wonderful career hitherto.

To-day that freedom is openly and defiantly assailed, and in a great measure destroyed, and every thoughtful man must be concerned in the solution of the great problems of its restoration and defense. It is safe to say that industrial peace and prosperity will never return to this distracted country until its citizens recover the liberty which once was theirs and which was their heritage. Until every man shall again be free to make his own contracts without dictation from others, whether they be his employees or his fellow employers, and until every man has the untrammeled oportunity to employ his hands and his dexterity, we may confidently expect that matters will go on from bad to worse until they end at last in some frightful social and political convulsion. The great question before the American people is, by what means and measures shall the recovery be had?

Certainly those rights will never be secured through their practical abandonment by the possessors. Every surrender that is made of the right of the individual into the hands of others only makes the matter worse and renders more difficult the return to the only solid ground. That is why the National Civic Federation, however well meaning may be its originators and members, is as dangerous to the integrity of our institutions as is the American Federation of Labor. Indeed it is difficult to determine which is working the more disastrously to the common good. They are both doing their best to eliminate even the little that remains of the freedom of the individual. What are known as conciliations and arbitrations and collective bargaining and all that are a delusion and a snare, which only add to the difficulty of the situation, for they all contribute to make more difficult the return to the freedom of action of the individual. They only add fuel to the flame. To concede the right of men to band together to control the lawful action of others and then to require that the questions in dispute shall be submitted to arbitration is a fatal policy, the mournful consequences of which no man can now conceive.

There is only one path along which this country can safely travel and that is the preservation in all its integrity of the absolute and entire freedom of the individual man, and public sentiment must be aroused to an adequate appreciation of that fact. Whatever tends to destroy that principle or to weaken the public interest in its continuance must be condemned as hostile to the well-being of society and be opposed at all hazards.

The institutions of this country are founded upon the principle of the liberty of the individual. It is expressed in the Declaration of Independence in the phrase, "We hold these truths to be self evident that all men are created equal; that they are endowed by their Creator with certain unalienable rights; that among these are life, liberty and the pursuit of happiness." The Supreme Court of the United States has repeatedly declared that the constitutions of the United States and of the several States are to be construed and interpreted in the light of that principle, and that every contract, combination, conspiracy or law which assails it in its true meaning is to be condemned. This right of the individual is covered and protected by a panoply of law entirely adequate to its full protection. And that law is beyond the power of any body of men in this country to repeal or alter until the Constitution is overthrown or until those appointed to interpret it shall betray their trust.

All that is needed to recover the enjoyment by every man in this country of the fullest liberty to make contracts and to follow his trade for the support of himself and family is the proper enforcement of the law of the land. And that every citizen is entitled to. It is the most valuable of all his privileges. To secure it courts are created and officers are appointed or elected and the whole power of society is available for its enforcement. Yet notwithstanding this fact, the country sees to-day everywhere the most open and flagrant violation of this right. Boycotts and intimidation of every character are openly resorted to against both employers and employees without any attempt to restrain them. The mails of the United States are freely employed by the law breakers without any attempt by the Post Office officials to interfere. The highest officials in the land are catering in every way to the law breakers. The press is silent or half hearted in opposition. The politicians and office seekers cannot be depended upon. No steps are being taken to arouse public sentiment to a realization of the magnitude of the evil or to its dangerous consequences.

In this situation the employers of the country are rushing together in associations for mutual defense and support. Finding themselves without the protection of the law, and the victims of lawless attacks, they feel compelled to form associations which to a large extent are copied after and adopt the method of their assailants. Being outside the pale of the law, they feel they must take the law into their own hands, as it is called—that is, they become law breakers themselves in sheer self defense. So we read everywhere of employers' associations being formed which adopt the same methods of coercion which their opponents employ. This course, while pardonable on the plea that self preservation is the first law of nature, and that it is all they can do, has a fatal vice in it. It justifies their opponents. You cannot boycott the boycotter, except as a result justifying the boycotter. You cannot fight the devil with fire without thereby becoming his servant. Is it not plain that permanent industrial peace will never return to this country by the use of such measures? They are mere makeshifts, the use of which will in the end only aggravate the evil to be met and destroyed.

But there is one means which can be taken and which must be taken. That is nothing less than the union of all the great interests of society in a movement to enforce the law of the land, which is the security of the right of the individual. Every decent man can join in such a movement. Every motive of patriotism and enlightened self interest will lead him to support it. All the great manufacturing, transportation, mining and mercantile interests of the country can co-operate in it. Such is the purpose and scope of the American Anti-Boycott Association, of which I have the honor to be the spokesman here to-day. I hope that every one of you and all others who may learn of its existence will take steps to join it.

* Read before the Central Supply Association, Put-in-Bay, Ohio, June 23, 1903.

It is asserted in a floating paragraph that a new use has been discovered for carborundum as a mask to preserve fire bricks from disintegrating in very high temperatures. The carborundum is finely pulverized and mixed with some medium to make it adhere to the bricks; possibly silicate of soda (water glass) might answer for the purpose. Fire bricks so treated have a much longer life than when used without carborundum.

The Consolidated Lake Superior Company.

A Proposed Issue of Bonds.

C. Shields, president of the Consolidated Lake Superior Company has issued an appeal to stockholders, from which we take the following:

"It is the opinion of the officers and directors of the company that the stockholders must now take some prompt action in order to save their investment in the property, as the possibilities of providing further funds from other sources have been exhausted, and the situation is extremely critical."

The plan which suggested itself as the most feasible was the issuing of bonds of sufficient amount to realize about $9,000,000, this sum being deemed adequate to pay off all the loans and indebtedness, complete all construction under contract and to furnish the company with about $2,000,000 of additional working capital.

Syndicate Negotiations.

This plan was submitted to the syndicate bankers in May, but it was found to be impracticable to sell bonds at the time. It was then suggested that if the loans due July 1 could be extended until after January 1, and if funds could be provided to meet the needs of the company until the proceeds of the bonds should be available, this would be wiser than to attempt to sell bonds under the existing unfavorable conditions. The bankers expressed a willingness not only to renew the loans until next January, but also to recommend to the syndicate which they represented the increase of their participation in the loans to the extent of 15 per cent. This plan would have provided about $750,000 of additional money; but it was found that, while the operations of the company would probably show a surplus on January 1, this could not be accomplished without providing for the payment of unsettled construction accounts and working capital for immediate use, as large purchases of material were necessary for which prompt payment would have to be made. It was concluded that the company could not get along with less than $2,500,000.

The past three weeks have been spent in endeavors to find a way by which this money could be provided. Inasmuch as all of the assets of the company were pledged to the bankers as security for the temporary loans of $3,500,000 and $1,550,000, which were made last December, the directors have been obliged to confine their negotiations to the holders of this collateral, as there has been nothing to offer as security for a new loan elsewhere. Efforts have been made to induce the bankers to increase their loans on their present collateral up to $7,500,000, but without success. No better results have attended the efforts to secure the consent of the bankers for the admission of a new loan of $2,500,000 under the same collateral. It was also proposed to the bankers that $15,000,000 of 4 per cent. bonds should be issued, secured by the collateral now pledged, and a loan be made on these bonds up to 50 per cent. of their value for a period of six months or longer, the syndicate loans amounting only to $5,050,000, to be converted into the new loan, if possible, and the balance raised from other sources.

It was hoped that one of these propositions would commend itself to the bankers, and that recourse to the stockholders would, therefore, not be necessary. It is believed, however, that the bankers will grant reasonable time to enable the stockholders to make an effort to raise the money needed in this emergency to save the property from dissolution. The only course which is open under the circumstances is for the stockholders to pay off the present bankers' loans and provide the additional capital which the company must have in order to carry on their business. To do this it will be necessary to raise $7,500,000.

A Bond Issue.

The only apparent way to do this is to create an issue of $15,000,000 of 30-year 4 per cent. collateral trust bonds, of which $12,500,000 to be offered to the stockholders at 60, the balance to be reserved for future use. These bonds would be secured by the stocks and by bonds secured by mortgages on the subsidiary companies of the Consolidated Lake Superior Company, which are now held by the bankers as collateral for their temporary loans, and, of course, this collateral cannot be made available until at least $5,050,000 shall have been paid in for the reimbursement of the bankers.

In December last it was figured out that to meet all obligations, complete construction and provide working capital, about $9,000,000 would be necessary, this being but little in excess of what it had been expected to realize from the sale of the unissued balance of preferred stock. The bankers loaned $3,500,000 and gave the company the right to borrow elsewhere under the same collateral the sum of $1,750,000, of which, however, only $1,550,000 was secured. These loans were to run to April 1, with privilege of extension to July 1, with the expectation that by the later date the permanent financing of the company would be effected. These loans were intended to cover the urgent requirements up to July 1, expecting that all further needs would be provided for in the permanent financing.

For reasons already explained, it was deemed impracticable to effect the permanent financing by July 1, and postponement to a later date leaves the future requirements of the company wholly uncovered. The requirements of the company are now substantially as foreseen from the beginning, and in contemplating now the provision of $2,500,000 of additional money, the total is still $1,500,000 short of the original estimate.

Steel Plant Ready.

The company are now in position to reap the benefits of the large investments that have been made. The period of construction has been passed, with the exception of the railroad extension, on which work has been suspended, and the copper-nickel Bessemerizing plant, which is nearly finished. The blast furnaces and steel plant, which constitute the most important factors in the company's operations, are now complete and ready to start as soon as funds can be had for the purchase of raw materials. All departments that are now running are operated at a profit, and with sufficient funds to meet the unpaid balances on construction contracts for working capital, the company can proceed forthwith and carry on their business with satisfactory results.

If the company can be put in possession of sufficient funds for their immediate requirements and the proper conduct of their business, the earnings for the fiscal year beginning July 1 will in all probability be very largely in excess of all interest requirements. It has been estimated by your president—and this estimate has been carefully verified by members of the board—that after everything doubtful has been excluded the earnings for the fiscal year now beginning will exceed $900,000, after paying all fixed charges on underlying bonds now outstanding. The only charge to be met out of these net earnings of over $900,000 will be the interest on the proposed issue of $12,500,000 of 4 per cent. bonds, which would require $500,000 for this purpose. It is apparent, therefore, that the company will be fully able to meet the interest on these bonds and have a substantial surplus remaining.

The Board of Directors therefore presents to the stockholders this issue of bonds as the only apparent plan by which the obligations of the company can be met and their property saved and their operations continued. There are now outstanding approximately 1,000,000 shares of common and preferred stock, and owners for the proposed issue of bonds in the proportion of $1000 of bonds to each 80 shares of stock, payment for such bonds to be made at the rate of $600 for each bond of $1000. The necessary warrants entitling stockholders to make subscriptions will be mailed to the stockholders of record on July 20, and on and after that date subscriptions for the bonds will be received on behalf of this company by the Commercial Trust Company, Philadelphia.

Such bonds as shall not have been subscribed for by stockholders on August 10 will be otherwise disposed of by the Board of Directors, but in no instance will they be offered or sold at a price lower than that at which they are offered to the stockholders.

The Casting of Pipeless Ingots by the Sauveur Overflow Method.*

BY ALBERT SAUVEUR AND JASPER WHITING.

In the method now to be briefly described it is believed that a practical means has been found for the casting of pipeless ingots. It will be sufficient for the purpose of this paper to recall in a few words the cause which induces the formation of the pipe.

After molten steel has been cast into an iron mold the metal in contact with the bottom and the sides begins first to solidify. After a relatively short while the top of the ingot, which is exposed to the cooling action of the air, also becomes solid and the ingot now consists in a rigid metallic shell holding a mass of molten steel, as shown in Fig. 1. As the cooling proceeds this solid shell increases in thickness, but since steel, like most substances, undergoes a considerable contraction in passing from the liquid to the solid state, the mass of metal which when liquid was sufficient to fill the space within the solid shell will, after it has in turn solidified, be unable to fill it and a cavity must necessarily be formed in the upper part of the ingot. It is evident, therefore, that the formation of the pipe is due to the fact that the top of the ingot solidifies while a considerable amount of metal below it is still liquid. Once the top has become rigid the contraction of the liquid interior in passing to the solid condition must necessarily result in the formation of a cavity or pipe. By retarding the solidification of the top we should, therefore, decrease the size of the pipe, and if it were possible, in a practical way, to maintain the top liquid to the very last—that is, until all metal below it has solidified—the formation of the pipe should be altogether prevented. Efforts have been made in this direction, such, for instance, as covering the top of the ingot immediately after casting with fuel or with molten slag, or in preheating the top of the mold. All such attempts, however, resulted only in a slight decrease in the dimensions of the pipe and were accompanied by practical objections which more than offset the small gain effected. The aim of the present method is to maintain the top of each ingot liquid until all metal below has solidified and to do so without in any way interfering with the conduct of the mill operations or adding to their cost. The method consists in so connecting a number of molds that the molten metal can overflow from one mold into the next, while pouring is continued in the same mold until any desired number of molds beyond have been filled.

Fig. 1.—Cooling of an Ingot.

In Fig. 2 is shown a diagram representing in elevation a number of molds which we shall suppose so connected that after one mold has been filled, if the supply of metal be continued into it, the excess of metal will overflow into the next, which will in turn be filled. To take a particular case, let us suppose that we cast the steel into mold No. 1, and that after it has been filled we continue pouring into this same mold until we have cast into it sufficient metal to fill the next five molds. After mold No. 1 has been filled the metal will overflow into mold No. 2, and when this one has been filled it will overflow into mold No. 3, and so on until six molds have been filled. It will be seen that by this method we maintain a flow of molten metal running over the tops of the solidifying ingots, and therefore retard the solidification of the tops, which is our desideratum. This should result in a reduction of the pipe, and, if sufficient molten metal be passed over the tops, in the complete obliteration of this defect. The molten metal flowing over the tops of the ingots acts after the fashion of a sinking head, feeding the pipe, and therefore preventing its formation.

It will be seen that in the example we are considering ingot No. 1 will have enough metal cast upon it to fill five molds, ingot No. 2 enough to fill four molds, ingot No. 3 enough to fill three molds, and so on to the last ingot, which had no extra metal passed over its top. The amount of molten steel flowing over the tops of these ingots decerases, therefore, as we pass from the first to the last ingot, and it should be expected that the effectiveness of the method in eliminating the pipe should also be greatest in the case of ingot No. 1 and should then gradually diminish.

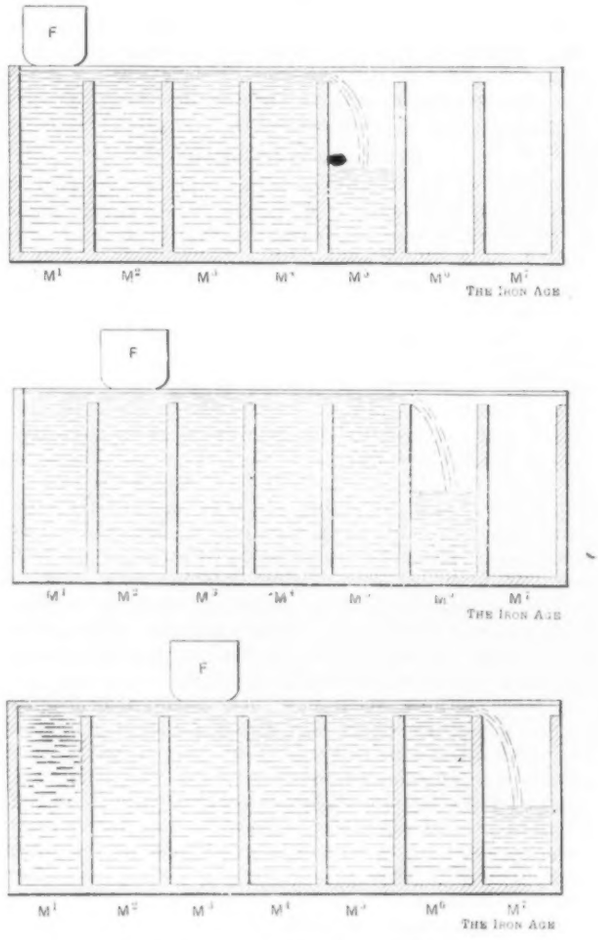


Fig. 2.—Molds Arranged for Overflowing.

THE CASTING OF PIPELESS INGOTS.

Segregation.—It is well know that the segregation of impure metal in the uuper part of steel ingots—that is, in the piped portion—is due to the fact that the impurities present in the metal, especially the phosphides, sulphides and carbides, are more fusible than the metal itself, and have therefore a tendency to collect in the portion of the ingot remaining molten longest. In the overflow method these impurities should naturally rise to the very top of the ingot and should then be carried away by the flow of molten metal to be discharged into the next empty mold. Here, however, they should be diluted so largely by the metal from the crucible or ladle as to have but a very slight effect upon the average composition of the

* From a paper read at the last meeting of the American Society for Testing Materials.

ingot. We have not as yet had the opportunity of testing the effect of the method upon the segregation of impurities, but from these theoretical considerations it should naturally be anticipated that if it does not prevent it altogether it should greatly diminish it.

The Overflow Method and the Casting of Crucible Steel Ingots.—Numerous experiments were conducted with crucible steel ingots in order to ascertain the practical value of the overflow method. The results obtained in casting six ingots, after the manner just described, are shown in Fig. 3, which is the reproduction of a photograph of the broken tops of these ingots. These ingots measured 3½ x 5½ x 22½ inches and weighed 100 pounds.

The results which had been anticipated from purely theoretical considerations are, therefore, fully confirmed. From the appearance of No. 5 ingot we infer that the passing over the top of an ingot of sufficient metal to fill one more mold by causing it to overflow into it will reduce the length of the pipe some 50 per cent., while the passage over the molten top of an ingot of enough metal to fill four more molds will result in the complete elimination of that cavity. In Fig. 4 is shown a number of pipeless or nearly pipeless ingots obtained by the overflow method.

In casting six ingots then in the manner just described, while the first two ingots will be pipeless, the

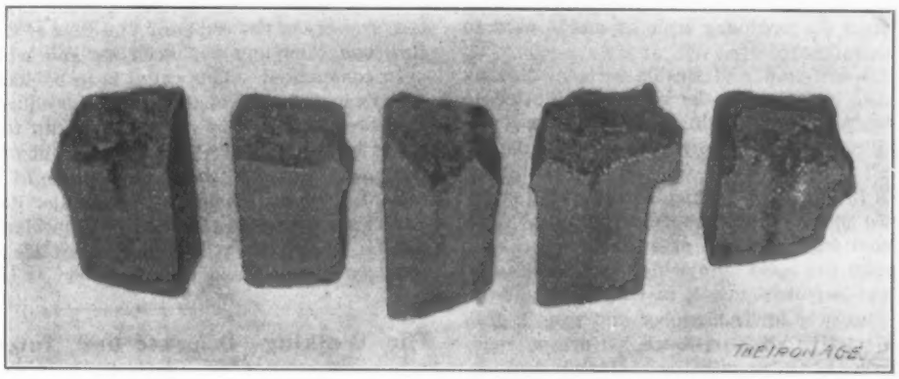


Fig. 3.—Ingots Cast by this Method.

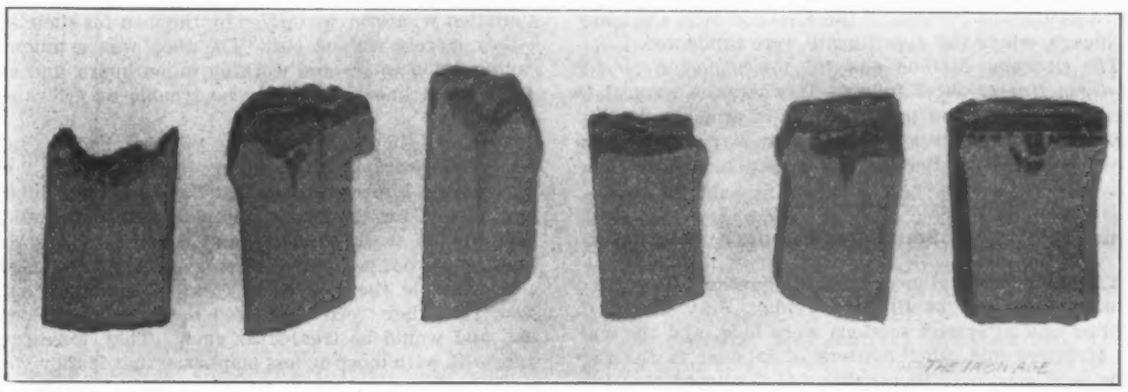


Fig. 4.—Pipeless and Nearly Pipeless Ingots.

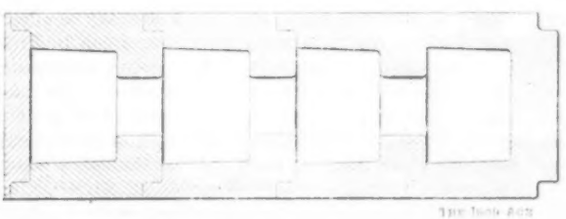


Fig. 5.—Plan View of Mold Used with this Process.

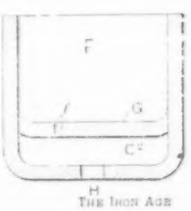


Fig. 6.—Crucible Used in Pouring.

THE CASTING OF PIPELESS INGOTS.

The steel cast contained from 0.9 to 1 per cent. carbon and was produced in a regenerative crucible furnace.

Ingots of this size and grade cast in the usual manner had a pipe extending on an average about 8 inches downward. Turning our attention to the ingots cast by the overflow method, it is seen that No. 1 and No. 2 ingots are absolutely free from pipe. They are solid masses of metal to the very top. The metal which was cast upon these ingots had caused their top to remain liquid until the metal below it had become solidified, preventing thereby the formation of a pipe. No. 3 and No. 4 ingots show a small cavity measuring about 1 inch, while No. 5 ingot has a 4-inch pipe. No. 6, which is not shown here, was not, of course, materially improved. These experiments were repeated a number of times and the results obtained were in every case very similar.

remaining ingots will have small pipes of increasing length. It may be readily conceived, however, that the overflow method may be conducted in a more continuous manner, so that enough metal will flow over the tops of all the ingots to make them pipeless—namely, in the present case, enough metal to fill four or five additional molds. If, for instance, returning to Fig. 2, after having filled six molds by pouring in No. 1, the pouring be shifted to No. 2 and enough metal be cast to fill mold No. 7, and then the pouring be shifted to mold No. 3 and enough metal cast to fill No. 8 and so on, it is evident that the necessary amount of metal will have flowed over the top of each ingot to prevent the formation of a pipe.

It is quite obvious that the amount of metal which must flow over the top of an ingot in order to make it pipeless will vary with the size of the ingot, the tem-

perature of the metal, the rate of cooling, the composition of the steel, &c. In each mill the most desirable manner of conducting the overflow method will have to be ascertained by a few preliminary experiments.

Connecting between Molds.—A suitable connection between molds had to be devised, and this important point was finally solved with complete success by using the molds illustrated in Fig. 5. They will be seen to be three-sided molds, each mold, moreover, being in two sections for convenience in stripping. When these molds are properly assembled and fastened together each two adjacent molds have a common wall between them, at the upper part of which a groove is provided for the overflowing of the metal from one mold into the next. These molds have given very good satisfaction. They are, if anything, less expensive than the ordinary style of molds used in crucible steel manufacture.

Teeming.—It was found undesirable to teem directly into the molds, as in doing so the metal is agitated to too great a depth during the teeming to allow of the quiet, undisturbed cooling desired. To avoid this disturbance, caused by the fall of the metal into the mold, a receptacle was used, shown in Fig. 6, and which consists of a crucible-like appliance provided with a false bottom. Each bottom is provided with one hole of suitable size. This crucible rests upon the mold into which it is desired to teem and the steel is poured into it in the usual manner. The metal flows into the lower chamber and from it into the mold. The relative sizes of the holes are so regulated that the lower chamber is being constanly drained. In this way the fall of the metal is broken and the steel in falling into the mold produces very little agitation of the molten top. The overflow method is now being installed at the steel works of the Simonds Mfg. Company of Chicago, where the experiments were conducted.

The Overflow Method and the Casting of Bessemer and Open Hearth Steel Ingots.—It was quite natural to first apply the method to the casting of crucible steel ingots, but experiments are now under way to ascertain its value in casting Bessemer and open hearth steel ingots.

The Meeting of Southern Furnace Interests.

The much heralded meeting of the Southern associated furnaces was held at Chicago Friday, July 10. Both morning and afternoon sessions were held, and the subject of prices and other matters of interest to the furnaces were gone over thoroughly. It developed that two strong factions of opposite views were in attendance. Virginia furnaces are said to have been in favor of maintaining the $15 basis for No. 2 foundry; another large interest fought for holding the market at $13 to $13.50, Birmingham, while another strong interest was in favor of cutting the price to $12 or $12.50, Birmingham. It was evident that a change of sentiment had taken place among some of the producers within the past two weeks, it being known that some companies who had favored radical action by cutting the prices to $12.50, Birmingham, changed front at the meeting, holding out for a $13.50 basis. The final result of the strenuous conference was the establishment of $13 for No. 3 and $13.50 for No. 2 foundry, Birmingham, either for quick shipment or for delivery during the last half of the year. One Tennessee company who were in favor of making a radical cut, believing that little business could be secured at $13.50 at the present time, withdrew from the association. All nine companies, members of the association, were represented at the meeting either personally or by proxy.

Much dissatisfaction is said to exist, as much among the sellers as among the buyers of pig iron. Representatives of independent furnaces seem to be jubilant over the outcome of the meeting. Various predictions as to what the future will develop and the calling of subsequent meetings are being indulged in. Already the market price has sagged below the newly established "official" price.

Buffalo & Susquehanna Iron Company.—The work on the plant of the Buffalo & Susquehanna Iron Company is progressing favorably, as the following brief description shows: The steel shells of the eight stoves and of one draft stack are practically completed, and the greater part of the fire brick lining of these stoves is in place. The other draft stack and the two furnaces are well along and will cause no delay in opening the plant. The structural work of the engine and pump house is finished and the brick work almost completed. All parts of six of the eight blowing engines are on the ground awaiting erection, and the bed plates and crank shafts of all the engines have been put in place on their foundations. The electric generators, pumps and other machinery have already been delivered and are now being installed. The steel frame work of the boiler house is completed, and the boilers themselves are being rapidly set up. The upper drums are in place and the tubes are now being put in. The structural work of one of the casting houses is also finished. The contract for the ship canal between the property of the company and that of the Pennsylvania Railroad Company has been let and work upon it has been commenced. This canal is to be 4000 feet long, 200 feet wide and 23 feet deep, and consequently the largest lake steamers will be able to come up to the company's docks built along it. The development of the company's iron ore property in the Mesaba range at Hibbing, Minn., and of their coal fields at Sykesville, Pa., is advancing at the same rate as the work on the blast furnace plant itself. The shafts at both properties are sunk nearly the required distance and the machinery is being assembled.

The Walking Delegate and Interstate Commerce.

Ten days ago all the men employed by a prominent manufacturing concern of Philadelphia struck. No explanation whatever was given by the men for their action—they merely walked out. The shop was a union one, paying union wages and working union hours, and as far as the firm knew there was no trouble or grievance of any kind.

A short time ago this same concern had a contract for certain work upon a building in New York. A walking delegate informed them that they could not finish the job. Asked for the reason, he said that they could not partially do work at home and complete it elsewhere. They would not be allowed to make goods in Philadelphia and assemble them in New York. When they entered New York they were considered to be a foreign corporation and would be treated as such. They were further informed, with more or less emphasis, that if they wanted to do business in New York they must establish a plant there. The fact that their men were unionized and that the firm conformed to all the rules and regulations of the union made no difference. As a special favor they were allowed to ship what they had already made, but no more. The same thing happened on a job in Pittsburgh.

The union prohibits the firm doing business outside their own city unless they erect a plant. The machinery they use is very expensive and most of it is of massive proportions; it cannot be picked up and carried easily and cheaply from place to place. Nevertheless, if they secure a contract with a possible profit of $1,000, they must establish a plant at a cost of at least $50,000. It makes no difference if there is but the one single little job in sight, a plant must be properly equipped for doing the work. Carried to its logical conclusion, this firm, not being allowed to do a stroke of work beyond the limits of Philadelphia, ought not to be permitted to work outside the ward in which they are situated. Then they ought not to be allowed to work beyond their own fence line, and finally they ought to be compelled to present the keys of their place to the walking delegate and retire permanently from business.

We have heard of no more flagrant case of persecution by the unions. Having complied with every requirement, good, bad and indifferent, this firm must not carry on the industry they have been years in building up. Restrictions and conditions, impossible of compliance, have been placed around them, and as a final stroke and to cap the climax their men have struck for no reason known to any one but themselves.

We imagine that such a case brought before the United States Courts under the Interstate Commerce laws would quickly bring even a walking delegate to his senses.

The Universal Pipe and Fittings.

A new type of pipe has been put on the market by the Central Foundry Company, 116 Nassau street, New York, under the name Universal, which has many advantages and is receiving marked attention at the hands of steam, water, gas and sanitary engineers. It has been patented in the United States and other countries by Mark Dean, the inventor, who has also designed special machinery for its production. The pipe is made of cast iron, especially adapting it for use in the ground and for carrying many fluids that are destructive to wrought iron. It is made in a variety of sizes from 2 to 8 inches, and to stand pressures of 150, 200, 250, 300 and 400 pounds. The pipe is provided with bosses placed 36 inches from center to center, the regular length of the pipe being 6 feet. These bosses provide a thickness of ⅝ inch at the thinnest point for tapping purposes.

The method of connection, which is the means of making cast iron pipe available for all uses to which wrought iron pipe has heretofore been put, is the principal feature. The pipe is made, in addition to the regular length, in

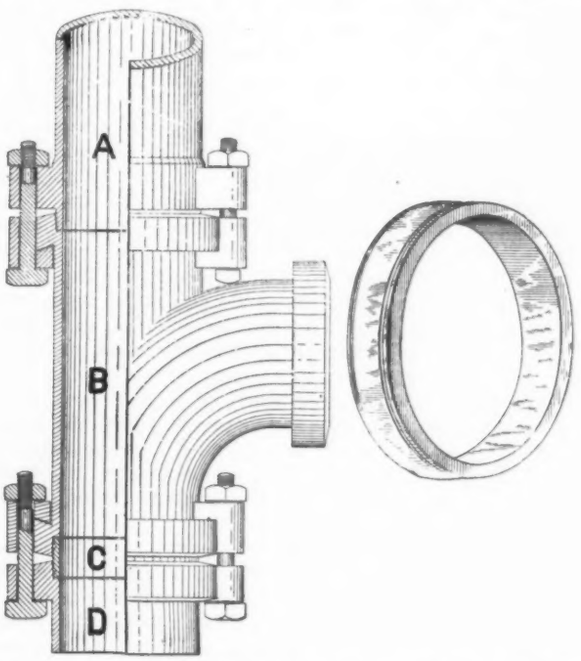


Fig. 1.—Method of Connecting Pipe and Nipple Used with Two Hub Ends.

shorter pieces 60, 54, 48, 42, 36, 30, 24, 18, 12, 9 and 6 inches. By the absence of the large bell end commonly used for connecting cast iron pipes a saving of 10 per cent. in weight is effected, which is a matter of importance in large shipments of pipe through its effect on the freight bill.

The method of connecting the pipe is clearly indicated in Fig. 1, which also shows how the pipe is connected with the fittings. There are strong lugs cast on each end of the pipe. Bolts of suitable diameter for the different sizes of pipe to be connected are used for drawing the hub and spigot ends easily together. The spigot end, A, Fig. 1, is finished on a machine, and the machines for finishing these ends are constructed on a master basis so that the pipe will always be of the same taper and dimensions. The hub end is finished in a neat and careful manner, the bevel of the hub being a fraction of an inch greater than that of the spigot end, allowing some flexibility to the joint. And, as an iron to iron connection is effected with a carefully machined bearing, there is no necessity of the use of any joint cement, except to prevent corrosion making trouble in case the joint must be separated for any purpose. It will be noted that there are lugs through which bolts pass on the end of the pipe, A; that the fitting B is provided with a flange having a beveled under side, and that a special casting or loose lug is used to grasp this flange and to permit the bolt to pass through it and draw the joint tight. This cut also shows the method of connecting two hub ends, the fitting D and the pipe B being joined by means of a nipple, C.

Another picture of the nipple is shown at the right of Fig. 1. This nipple is constructed with a bevel each way from the center and a slight groove is provided on each end of the nipple. These nipples are also made of different lengths, providing some space between the two bevels or finished ends. They are finished with the same care to maintain exactness of dimensions as the hub and spigot ends, so that a universal and unchanging size is effected. The machinery for making them is constructed with a view to maintaining one perfect size that will not vary in the dimensions and bevel, all these essential points having been determined upon before the manufacture of the pipe for commercial purposes was taken up. The flanges, nipples, loose lugs and the bolts are all of such dimensions as will stand the heaviest strains to which the pipe will be put, without breakage, unless a defect in the bolt head may cause it to pull off.

With a view to determining the pressure which ordinary extra heavy soil pipe will stand with this joint, particularly so far as tightness of the joint was concerned, a number of tests have been made. Four sections of the pipe connected were with a cap on one end and a plug on the other. A water connection was made with the pipe through one of the bosses and a pressure gauge was placed on this pipe. By the use of a special force pump pressure was applied until 200 pounds was reached; then two of the blocks under the pipes were withdrawn and the pressure was run up to 670 pounds, when a bolt head was pulled off, due to a defect under the head, allowing the pipe to separate. In less than two minutes' time a new bolt was inserted and the joint made tight again, when the pressure was again run up to 500 pounds and the block under the center and the block under the end joint were removed and the ends of the pipe were forced down 5⅞ inches from alignment, while the center joint was forced down 3 inches out of alignment. The pressure was then run up to 700 pounds, and owing to the pipe being thrown so much out of alignment, the first leak was shown. The pipe was again aligned and the joint made and 700 pounds pressure applied without a leak. This experiment is cited to convey an idea of the ease and quickness with which joints between pipes and fittings can be made; also to show the high pressure that the joints are capable of withstanding without any preparation other than that which each section of the pipe or fitting receives on the regular machines of the company.

The company have partially equipped two of their plants to make some sizes of this pipe and are proceeding to complete their equipment. No special effort has been made to place the pipe properly before the trade, yet considerable demand has developed as the result of the various installations that have been made to test its value in a practical manner for various uses. For a soil and vent pipe for sanitary purposes the pipe has marked advantages. It is lighter in weight through the absence of the old heavy bell hubs and will stand higher pressures permanently, as the lead and oakum joint are not depended upon continuously. It has also been demonstrated that the bolt joint can be made far more quickly than it is possible to make the ordinary calked joint. The company's sanitary fittings include L's, long sweep L's, TY's and every fitting that is needed to install a perfect sanitary system in the modern building.

As a water pipe supply, 1200 feet of 4-inch pipe has been used in Boonton, N. J., carrying a pressure of 114 pounds, a portion of the pipe being suspended along the side of a bridge having a span of 93 feet. Here the flexibility of the joint enabled the pipe to conform to the arch of the bridge. In the span several feet of pipe are out of a straight line. The Maryland Steel Company, at Sparrow's Point, Md., are using several hundred feet of 6-inch pipe for a water supply. The Ottawa Gas & Heating Company of Ottawa, Kan., state that men who had never seen the pipe before laid 90 feet the first hour and 125 feet the second hour, and that, in addition to this saving in labor, it has proved exceptionally tight in service.

A special feature of merit is the smoothness and uniformity of size of the inside of the pipe at the joints, reducing the friction to whatever fluid passes through it and presenting nothing to permit clogging. Each joint in the Universal pipe is a union and a line of pipe may be opened at any joint for the insertion of the fitting without any inconvenience.

A Century of Superheated Steam.

BY E. P. WATSON.

Judging from the interest manifested in all that relates to the use of superheated steam it might be, and possibly is, supposed by some to be a recent discovery, but the facts are that it is coeval almost with the steam engine itself. In 1802 Trevethick constructed an engine with the cylinder inside of the boiler, directly in the steam space, and although this is not using superheated steam, the intention and aim was to the same end: to overcome cylinder condensation. In 1828, however, an unknown engineer, one who is simply mentioned in records as "the engineer of a mine in Cornwall, England," wishing to outdo the record of a neighboring mine in economy, where the cylinders had been lagged with sawdust, made a brick oven, so to call it, around and beneath the cylinders and steam pipes of his engine. The oven was provided with a grate and flues, which caused the heat to circulate all around. The results of this crude experiment were surprising, the duty of the engine being raised from 41,000,000 to 63,000,000 foot pounds per 84 pounds of coal per hour.

Trevethick tested another larger engine, which, when 5 bushels of coal were burned under the cylinder, required only 68 bushels of coal under the boiler; without reheating the steam, however, it took 108 bushels of coal to do the same work in the same time. The steam pressure was 45 pounds per square inch. From the result obtained with this apparatus, Trevethick invented a boiler in 1832 which was of the tubular type and had a superheater between the boiler and the engine, and he also jacketed the cylinder with waste gases from the furnace. Thus early in the history of the steam engine what are supposed to be innovations of recent discovery were put in actual use.

What Superheated Steam Is.

Steam that is hotter than the temperature due to its pressure is said to be super (over) heated, and the object of reheating it is not only to change it from its natural state of saturation as generated in contact with the water from which it was made, to dry it out, as one may say, but to surcharge it with heat so that it shall not fall back into a saturated condition so soon as it is used in an engine. Contrary to the general view, the pressure is not increased by superheating after the water held in suspension has been dried out of it. This is to say that commercially dry steam, as it is termed, holding from 2 to 2½ per cent. of water at 100 pounds per square inch, with a temperature of 327.7 degrees F., does not gain in pressure by the addition of any quantity of heat after the suspended water is driven out, or re-evaporated. The gain from its employment is in preventing premature condensation in the cylinders and steam chests of an engine before it has done work.

While superheated steam has been experimented with for very nearly a century to a greater or less extent, it cannot be said to be in general use. In Europe, particularly in Germany, many plants have been installed, but it does not gain ground here rapidly. Many years ago John Roach, the builder of a large number of steam vessels, put superheaters in several steamships. In design they were merely cylindrical tubulous vessels which were heated by waste gases, but after some experience with them they were abandoned, for the reason that the deterioration by constant heating and cooling and the neglect of them by persons in charge soon destroyed them. Repairs were so extensive and costly that superheating on that plan did not pay. In England, however, the system was tried upon many ships with very decided benefit. In the Peninsular & Oriental Company the saving was 20 per cent. on a working pressure of 20 pounds and a superheating of 100 degrees; the proportions of the heater were 2.75 square feet of surface per nominal horse-power. Tests made upon some steamers showed a saving of 30 to 40 per cent. over saturated steam, but it must be borne in mind that the boilers themselves have much to do with the relative economies; those that furnish fairly dry steam lower the ratios largely. Boilers which shirk work, so to speak, and furnish steam which is very wet, make superheating loom up tremendously as a money saver.

Difficulties to Be Encountered.

The difficulties encountered in the early use of superheated steam were many. The high temperature was the chief. Tallow was generally employed as a lubricant for valves and pistons, and the decomposition of it into its component acids destroyed them rapidly. I have myself seen, within 50 years, cast iron disintegrated by even low pressure steam, say 40 pounds, and a tallow lubricant, so that it could be cut with a knife; and, curiously enough, the piston and cylinder accumulated balls of an inch or more in diameter which were almost as hard as iron, and were a source of danger. These balls were supposed to be caused by accretion of dirt from the ports, dissolved iron in part, and fatty acids from the tallow. When mineral oil lubricants came into use the trouble ceased. The same agent stopped one of the difficulties with overheated steam—that is, scoring of valve faces and grooving of cylinders, when the steam was not superheated too high—but, if we may credit current reports in technical journals, it is not unknown to-day when the surplus heat is too great. A writer, in reviewing this topic, is of the opinion that one source of trouble with superheated steam is neglecting to keep it at the same temperature continuously, so that the introduction of saturated steam lowers the temperature and deposits water on the working faces; he arrived at this conclusion by noticing the action of a good hydrocarbon oil, which in one engine with commercially dry steam gave good results; when used in another engine under wet steam it showed a heavy deposit and scored the metal badly. Also, where a superheater was fitted with a by-pass, so that the action could be shut off as desired, the destruction of the superheater followed in a short time. One peculiar result with some forms of superheaters is that although it appears to be at a high temperature in the vessel where it is generated, so to speak, the heat, rapidly lost between it and the steam chest, so that it enters the cylinder at a temperature due to its pressure only. This would seem to be caused by radiation, and with modern laggings should not be noticeable.

The proper degree to which steam should be heated has been set down by some as the equivalent of the heat lost by condensation in the cylinders, but this is only a portion of the waste, nothing being allowed for radiation; this last may be anything, according to the conditions of situation and the nonconductors applied. The heat lost by condensation is also variable, but it is asserted that tests with superheated steam (no authority being given) show 20 per cent. economy with only 5 degrees superheat. By and large the superheat used in good practice, by which is meant an all round efficiency, is but little in excess of that required to make up the latent heat dissipated during expansion.

Michael Longridge, a well-known English engineer of long experience, says that if the steam be comparatively dry when it leaves the boiler a few degrees superheat can make no difference, but there is always a greater or less waste from condensation in the ports, which goes into the cylinder, where it is a source of loss; in such a case a few degrees overheat will be beneficial. At a gauge pressure of 100 pounds per square inch condensation of 1 per cent. would be checked by 19 degrees of superheat, but if the condensation amounted to 5 per cent. a superheat of 100 degrees would be needed to insure dry steam at the steam chest. To quote Mr. Longridge verbatim:

"Moreover, it is possible by raising the temperature still higher to provide not only the heat needed to prevent initial condensation, but also that required for conversion into work during expansion, thus keeping the steam dry throughout the stroke. In this case the heat abstracted by the metallic surfaces during the exhaust stroke will be comparatively small; and, as a consequence, the heat required to prevent condensation during the next admission will also be small; for it is in the evaporation of water lying upon them rather than by radiation into space occupied by dry steam that the surfaces part with heat and fall in temperature. To attain

this ideal condition, however, a high degree of overheat is required, probably from 250 to 300 degrees, and this cannot be obtained without an extra expenditure of coal."

Experiments tried in 1895 with a compound engine under similar conditions to those stated show that steam superheated to 300 degrees above the temperature due to the boiler pressure of 168 pounds per square inch lost 23 degrees of heat in its passage from the superheater to the engine. The steam in the cylinder was dry throughout the whole stroke and the consumption, per horse-power hour, was the lowest recorded up to that date—10.17 pounds, but it appears that this was considered misleading by the experimenters, for it is stated that the extra heat required to superheat the steam was as much as would have been needed to evaporate 1.3 pounds of water, so that the actual coal consumption should read 11.47 pounds of water per horse-power without superheating, which is so slight a gain over a triple expansion engine working saturated steam of the same pressure that it would be no inducement to incur the expense of installing a superheater.

There is another point that must be considered in this experiment, which is that the experimental engine had only two cylinders. With three, as in a triple engine, it is extremely doubtful if the superheat would have lasted through the third cylinder, thus entirely neutralizing the gain previously made. In other words, the experiment was carried out to its legitimate conclusion, as it should have been to obtain data of value. Had it ceased when an apparent gain was shown there would have been no economic results whatever. The worse the engine and boiler the greater is the gain derived from superheating.

It is asserted that if a superheater is used simply as a steam drier it may be placed between the boiler and the chimney, but if its full usefulness is expected, to prevent cylinder condensation it must be heated by gases of very high temperature—1000 to 1200 degrees. It is therefore evident that unless the waste heat from the furnace possesses a very high temperature, at least 200 degrees above that of the steam in the boiler, the superheating vessel must have a very large surface, for when new and clean it will dry the steam thoroughly, doubtless, but with smoky coal it will soon become sooted up and lose much of its capacity. If, on the other hand, the superheater be placed near the furnace, or is heated by an independent fire, precaution must be taken to prevent injury to the cylinders by excessive heat. To control the temperature at all times the main steam pipe should lead to both the superheater and the boilers, with valves to regulate the supply from each, and also the heat of the mixtures of saturated and superheated steam.

Thermodynamics of Superheated Steam.

Prof. R. H. Thurston, having made a study of this aspect of the matter, says that all testimony confirms the belief that superheated steam may effect large net economies. Collating the results of 50 carefully conducted experiments, well authenticated, it appears that the gain ranges from 10 to 50 per cent. over saturated steam when only 100 degrees of superheat is used. This completely destroys cylinder condensation. Even 15 degrees will give important gains in the reduction of internal wastes; every application of the system, discreetly effected, returns from two to ten times its cost in heat expended, the largest returns being realized from the smallest amount of superheat. The indications are, so far as we may judge from early and contemporary practice, that good engineering in the premises pays well, the limit being only at the point where an excess of heat destroys the superheater. Professor Thurston says that out of 52 cases observed by himself the economic effect was 26 per cent., with a superheat of 105 degrees F. Used in compound engines the gain was only 20 per cent. With a superheat of 50 degrees (simple engines, doubtless) the reduction in wastes was also 20 per cent., probably not far from the average for all. Taking an average case, where the quantity of heat brought over from the boiler is 1100 B. T. U., with 25 per cent. condensation upon entering the cylinder the heat wasted per pound is 275 B. T. U. To supply this loss by superheating would require an increase of temperature to 570 degrees F., the economy effected being measured by the difference between this equivalent of the waste and the quantity of heat expended in its reduction. It is known that in many cases such wastes have been extinguished by 100 degrees superheat, leaving as its only relic the subsequent loss by cylinder cooling, with later thermal changes which take place in the cycle, to possibly, as a maximum, 10 per cent. One thermal unit, $1, 1 pound of fuel or 1 pound of steam returns three, and 300 per cent. pays for the superheating and any repairs needed in boiler and engine. When the gain by superheat is less the ratio of profit to expenditure is greater, since the first few degrees in the elevation of temperature exert the greatest effect in reducing initial condensation.

Superheating has for its sole purpose to-day the extinction of internal thermal wastes. Here it is extraordinarily effective, a comparatively small amount of extra heat upon the admission of steam to the cylinder resulting in a great reduction of internal losses. The process is one of prevention rather than cure, which is vastly more economical than attempted cure. Jacketing ordinarily suppresses but a fraction of the waste, and the multiple cylinder engine also has its limitations; superheating may not only check these but likewise diminish the resistances in the passage of dense steam through ports.

The hitherto unconquered obstructions to the general use of superheated steam are those resulting from destruction of packings and lubricants, with consequent cutting and friction of the valve faces and packing rings. Modern oils, however, have removed these difficulties to a great extent, and it seems probable that before long the limit of superheating at present may be largely exceeded.

The Financial Resources of Kansas.—A surprising degree of financial strength and of banking resources of the State of Kansas is revealed in recent statements made not only by national banks but by State and private banking institutions. According to the State Commissioner's report Kansas has never been in a better condition to meet the agricultural demand for money. During the past three months Kansas banks have gained nearly $2,500,000 in deposits, the total deposits—individual and bank—being something over $92,500,000, the reserve of cash and sight exchange amounting to over $37,000,000, or 40 per cent. of deposits. This certainly does not reveal a very profitable condition of the money market for Kansas banks, but for the moment strength is probably more desirable, as naturally an active demand upon local institutions is expected to assist in the harvesting as well as in the market movement of the grain crops. There has been a marked growth in both the number of banks and banking capital invested in Kansas since the last call for statements of banks, the Commissioner's returns showing that seven new national banks and eight State banks have been organized, with a total capital of over $17,800,000, the report showing the existence of 496 private and State banks and 140 national banks in the corn district early in June. The total deposits in these banks indicate the holding of $63.20 per capita.

A correspondent of *Power*, in an article upon the comparative virtues of grease and oil as lubricants for heavy machinery, gives the good qualities of both, but says that grease is the most economical for equal service, adding that grease is not always what it purports to be, the price, as in all other things, governing the quality. That which is a by-product of petroleum has had all the oil pressed out of it; it is then adulterated with rosin oil, asbestos, lime, tallow, beeswax, &c., to give it consistency and body, but as a lubricant it is of no value. This stuff can be sold at a low price, and persons who use it get a very poor opinion of a solid lubricant. Comparing oil at 60 cents a gallon with grease at 15 cents per pound, the service was as follows: In a test lasting three days of ten hours each, 5 gallons of oil were used and 20 pounds of grease alternately, the net cost being the same for each lubricant. The oil lubricated 866,099 square feet of frictional surface daily, while the grease lubricated 4,365,056 square feet in the same time, there being no perceptible difference in the load under each substance.

Russian Duties on American Metal Products.

WASHINGTON, D. C., July 14, 1903.—Manufacturers of iron and steel whose exports to Russia have been restricted by the edict increasing the rates of duty, issued by the Russian Government in retaliation for the action of the Secretary of the Treasury in levying countervailing duties on Russian sugar, have addressed inquiries to the State and Treasury departments as to whether the abandonment of sugar bounties by the principal countries of Europe on September 1 next will probably result in the withdrawal of the decree against American metal manufactures. In reply the statement is made that while the departments have no official information with regard to the intentions of the Russian Government concerning this matter, it is assumed that the action of the Brussels conference in agreeing to abolish export bounties on sugar will not affect Russia, for the reason that that Government contends the manipulation of the internal revenue tax on sugar, against which the United States has countervailed, does not, as a matter of fact, constitute an export bounty. Not having taken part in the conference and claiming that no export bounty is paid on her sugars, Russia will still be in position to continue her internal revenue system unchanged and to maintain the retaliatory duties assessed on American metal products.

The Russian Position.

The position of the Russian Government with regard to the action of the Brussels conference was briefly stated in the argument of the test cases recently tried in the United States Supreme Court, in which counsel for the importer, in opposing the claim that Russia paid bounty on exports of sugar, said:

"The Brussels Sugar Conference decided, not that Russia paid a bounty on exportation, but that the artificially high prices insured on the home market by the high protective tariff acted as virtual bounties on production, enabling the manufacturer to endure losses abroad. The conference covered the whole field of artificial advantages accorded by government, and if its conclusions are to be adopted the United States is the greatest bounty paying country in the world. Congress could never have intended the words 'bounty or grant,' as used in Section 5, to have any such extreme application."

In this connection it should be remembered that the decision of the conference with regard to Russia was not accepted by that Government, and that Russia did not participate in the later sessions of the conference, at which it was decided to abandon the export bounty system. Under the circumstances the only course left open to the United States is to take the matter up through the usual diplomatic channels and endeavor to induce the Russian Government to concede the contention which the State Department has steadfastly urged, that the assessment of countervailing duty against Russian sugars is in no sense a discrimination against Russian commerce, for the reason that similar duties are levied upon bounty fed sugars exported from other European countries, which countries, it is urged, would have a grievance against the United States if exception should be made in favor of Russia.

A Diplomatic Question.

At the present time this controversy is wholly in the hands of the State Department. The Secretary of the Treasury some time ago addressed a letter to the Secretary of State, calling his attention to the fact that the United States Supreme Court had decided that an export bounty was paid on Russian sugars, and suggesting that the matter be taken up for very urgent representations. The State Department, however, has been seriously handicapped in these negotiations by the questions growing out of the occupation of Manchuria by the Russians, against which protests have been entered, and more recently by the discussion preliminary to the presentation of a protest against the outrages upon the Russian Jews. Both of these incidents have reached critical stages, and pending their settlement it is not practicable to make headway in the negotiations looking to the withdrawal of the retaliatory edict.

The administration also finds itself somewhat embarrassed as the result of the general discussion of the bounty system indulged in by the United States Supreme Court in deciding the Russian sugar test case. The statements of the court in this connection have been summarized by the chief counsel for the importers of Russian sugar, as follows:

"Russian sugar is truly bounty fed; but so also is every American product which is protected by the tariff, or is allowed a drawback on exportation, or is subject to internal revenue tax, for all such taxes are remitted on exportation. The Supreme Court of the United States has decided that the American protective tariff system results in the payment of bounties on production; that our elaborate system of drawbacks is equally a bounty paying device; that the remission of taxes on distilled spirits and other products which are subject to internal revenue tax in this country constitutes a bounty on exportation. It would be hard to imagine a more sweeping decision or one productive of more far reaching results.

"It now becomes the duty of the Secretary of the Treasury to levy a countervailing duty on all foreign products which receive the benefit of drawbacks on exportation to this country; on all products which are subjected to excise taxes in the country of their production, for remission of these taxes on exportation is practically universal; and, finally, on all foreign products which are protected by a customs tariff, enabling the surplus to be exported at a price less than the home market price. These be all bounties, according to the decision of the Supreme Court, and Section 5 leaves the Secretary no discretion in the matter. In some cases the amount of these bounties will be easily arrived at, as, for example, the bounty on German steel, which, as in the case of the Russian bounty, is fixed by the market price of private concessions between manufacturers, the large manufacturers inducing the seaport manufacturer to export his product by paying him the difference between the price he will obtain abroad and the price he foregoes in the protected home market. Here is a liquidation of the value of the protected market—*i. e.*, of the bounty—to the exporter and the countervailing duty may be estimated accordingly, but in other cases some difficulty may be expected."

The Secretary of the Treasury has no thought of taking action along any of the lines suggested, but, as we pointed out in these dispatches when the decision of the Supreme Court was handed down, the administration finds itself heavily handicapped in further diplomatic discussion of this subject by the comprehensive *obiter dicta* of the highest legal tribunal of the United States.

Our Exports to Russia.

Some interesting figures compiled by the Bureau of Statistics show the exports from the United States to Russia of manufactures of iron and steel during the fiscal years 1899, 1900, 1901 and 1902. The Russian edict was in force during the latter part of 1901 and throughout 1902, hence these figures indicate the effect of the retaliatory duties. They are as follows:

	1899.	1900.	1901.	1902.
Russia on Baltic Sea.	$2,153,353	$1,417,475	$976,681	$983,771
Russia on Black Sea..	615,089	497,713	240,533	139,776
Russia, Asiatic.....	790,311	2,384,945	353,250	105,010
Totals.....	$3,558,753	$4,300,133	$1,570,464	$1,228,557

The exports to Asiatic Russia in 1900, as shown by the above table, were much above the normal because of shipments of steel rails, valued at $1,350,399, presumably for the Trans-Siberian Railroad. But for this item the total for the year of all exports to Russian ports would have been less than $3,000,000, and the decline from 1899 to 1902 would, therefore, have been continuous. It should be borne in mind that the Russian edict does not affect all the manufactures of iron and steel included in the above figures; if it were practicable to segregate the articles upon which retaliatory duties have been levied the decline in 1902 would doubtless appear much more marked.

The organization of a private Kartel among the German beet sugar producers to take the place of the Government bounty, which will be discontinued September 1, has raised the question as to whether the Secretary of the Treasury will undertake to countervail against the

gratuities of the Kartel, and thereby furnish the basis for retaliatory action by Germany against American commerce. There is no doubt the Secretary at one time seriously contemplated such action and reports to that effect were sent out from Washington in good faith, but closer study of the terms of Section 5 of the tariff act has convinced the officials of the Department that no cognizance can be taken thereunder of bounties or gratuities paid by private concerns, the statutes dealing only with bounties or grants paid by "any country, dependency or colony." As the Kartel is entirely unofficial, the Secretary of the Treasury will take no notice of its gratuities upon exports of German sugar. W. L. C.

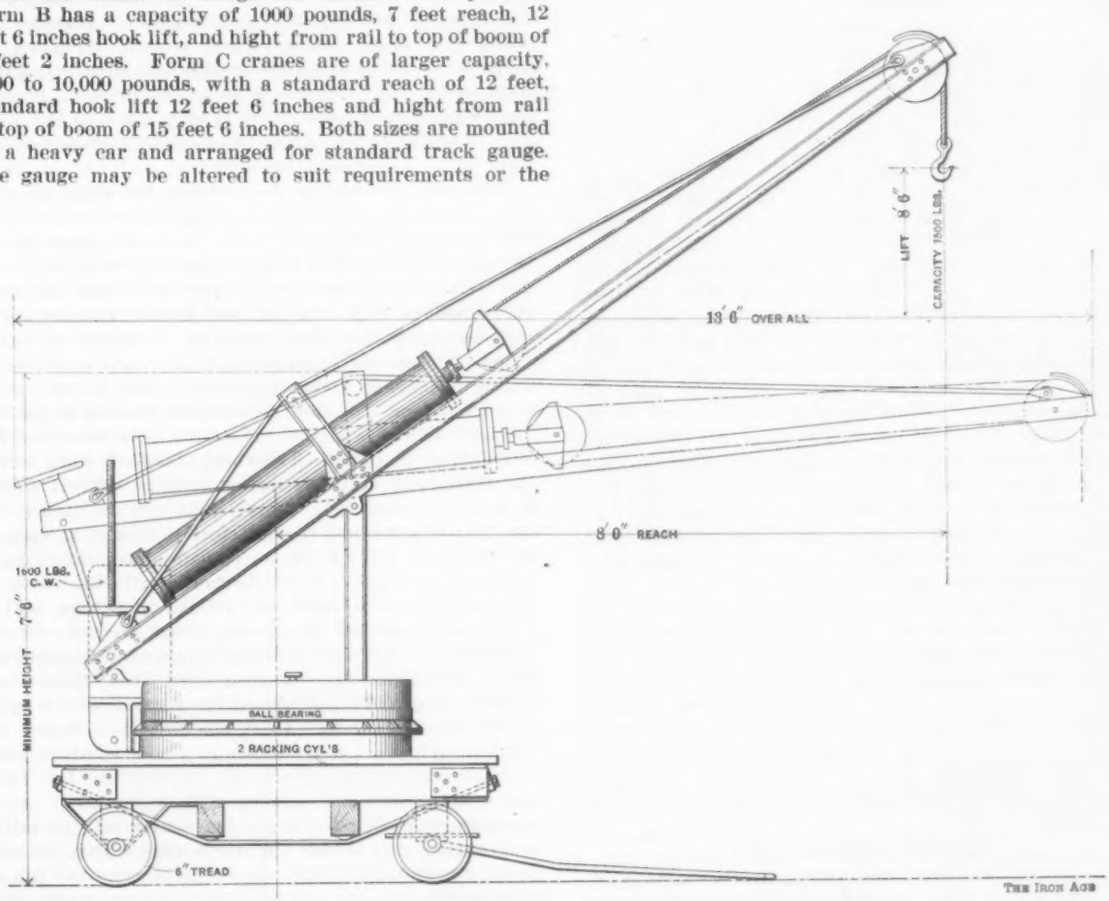
The Garry Pneumatic Revolving Crane.

The Garry Iron & Steel Company of Cleveland, Ohio, have designed a special type of pneumatic revolving crane. This is made in two standard types—B and C—which are similar in design but of different capacities. Form B has a capacity of 1000 pounds, 7 feet reach, 12 feet 6 inches hook lift, and hight from rail to top of boom of 9 feet 2 inches. Form C cranes are of larger capacity, 2000 to 10,000 pounds, with a standard reach of 12 feet, standard hook lift 12 feet 6 inches and hight from rail to top of boom of 15 feet 6 inches. Both sizes are mounted on a heavy car and arranged for standard track gauge. The gauge may be altered to suit requirements or the cranes may be mounted on a special hand truck, as shown in the drawing, for convenience in moving about in storerooms, warehouses or platforms. Unless specially ordered the crane cars are equipped with a set of rail clamps to prevent tipping when lifting the load. On special orders cranes are built with a counter balance on the turntable, as in the crane illustrated. This obviates the use of rail clamps. The cars are of extra heavy design, and when built as a hand truck are fitted with four wide tread wheels. The crane base is bolted directly to the car and has a machined ball race on its upper face, which contains 193 ground steel balls.

The bottom of the base is machined to receive the cylinder, rack, guides, pivot and stop. It has a projecting ring, the underside of which is machined for rollers and brake. The brake bracket is equipped with rollers and air cylinders actuated by a foot valve convenient to the operator and is attached to the turntable, platform and hoisting cylinder on top of the turntable. The hoisting cylinder is securely fastened to the turntable and the brake bracket, and is additionally supported on the top of the turntable by means of the vertical members of the boom proper, which are attached to the top turntable. The air for hoisting is applied to this cylinder.

The booms are made of heavy channels stiffened by top truss rods. The cables are ordinarily made in two parts for 12 feet 6 inches hook lift, which may be modified to suit the hook lift required. The air is applied in such a way as to permit the operator to stand on top of the turntable and handle the crane for all movements without changing his position.

The company also manufacture pneumatic cranes having a horizontal boom with trolley, which racks in and out on the boom, thus giving four applications of power. The standard type of crane can be furnished with motor for traversing the car up and down the track, or with hand power traversing arrangement if desired. These cranes are particularly useful in loading canal boats, freight cars, for coaling locomotives, or for purposes where heavy lifting is required.



THE GARRY PNEUMATIC REVOLVING CRANE.

In a recent law suit to recover damages for malconstruction of a machine it was asserted by the defendants that no warranty was given by them either as to performance or materials furnished, but the court ruled that acceptance of the blue prints, which were furnished by the plaintiff, was of itself a guarantee that covered all conditions—to wit, the best material and correct performance—and dismissed the allegation. It was also shown that the defendants had made some changes in the plans of the machine without the knowledge and consent of the plaintiff, by this act rendering themselves liable for damages in failure to perform their contract. In some States one departure from the exact reading of a blue print, if the same is legibly marked and not susceptible of two constructions, nullifies the contract as regards proper performance and renders the constructors liable in damages. A certain smoke stack was marked on a blue print to be 15 inches in diameter, but through a misreading of the blue print the contractors made it 13½ inches; this, while it did not prevent the boiler from working, was contrary to the instructions on the drawing and the contractors were held accountable. Not the slightest change in construction is admissable, whether it is right or wrong to make the change. Alterations of whatever nature must be made by the designer and him alone; all other persons make them at their peril.

The Utah Iron Fields.

DULUTH, MINN., July 10, 1903.—A probable early development of iron trade in a new field is that of the immense ore district of southwestern Utah, in Iron County, 250 miles south of Salt Lake City, some 500 or 600 miles from Pueblo and nearly 500 miles from the Pacific Coast. Just at present there is no railway connection anywhere; one traveling to the district must go in by team for 35 to 40 miles from the nearest station. Railway connection is a matter of a very short time, however. At Salt Lake City I saw a few days ago train after train of construction material, light rails, tram cars, scrapers, shovels, iron and steel supplies. It was all bound for the southwestern end of the W. A. Clark line, which has been financed within the past week and is to be extended through at once.

A glance at the map of Utah, California and Colorado will give an idea of the tremendous change that is immediately to take place in that section. First the Oregon Short Line, now running south from Salt Lake City to the California line, is to be pushed on to the Pacific Coast. This is locally known as W. A. Clark's road, for he has bought it. It will touch salt water at San Pedro harbor, close to Los Angeles. The material for this extension is, as I have said, actually on the ground and work has commenced. This line runs 30 miles from the ore deposits of Iron Mountain. The short gap is across a level sage brush desert, where rails can be laid with exceeding ease. It is announced on authority that this connection will be laid down at once. The Rio Grande Western road will build, it is fully believed by those in direct touch with the situation, from its main line southwesterly to Iron Mountain. This new line will leave the main road somewhere near Green River, and 150 miles must be built to reach the mineral region. The Clark road will make these ores available for iron manufacture on the Pacific Coast or at Salt Lake City. The Rio Grande will give the Colorado Fuel & Iron Company a new and somewhat desirable supply of both hematites and magnetites.

In an article in *The Iron Age* four years ago I detailed the new discoveries there and the successful efforts of two or three men at Salt Lake and the Mesaba range to secure large and valuable portions of the new range. Their holdings have been on the point of sale at various times since then, but are still their own. Aside from these men several others have since taken up lands there, on what has been found to be a valuable part of the ore zones, and during the past few months the greatest activity has been noticeable, until now there is practically no untaken land left within reasonable distance from outcroppings, productive pits, or from where geological theory indicates the probability of the continuance of ore deposits.

The Different Interests.

For months the Colorado Fuel & Iron Company have been represented there by their chief purchasing agent, Mr. Ladd, and they now have a competent mining engineer from the Lake Superior region conducting their elaborate explorations under charge of John D. Gilchrist, their superintendent of mines. Mr. Ladd has secured more than 25,000 acres for this company. Much of this has been taken under desert land and placer ground acts, but a very considerable quantity has been bought outright for cash from the original holders at prices far above what they had until recently ever expected to receive. No other holder of land in the district controls anything like such an acreage. Next are the Milner holdings. S. B. Milner of Salt Lake City, and associates, were first on the ground and have a very large and apparently very valuable property. They have secured nearly all the immense magnetite blowouts, outcroppings through the lime rock containing a really remarkable quantity and quality of ore. They also own much of the lower land, which may perhaps prove the more valuable. In part of these Milner holdings Minnesota men are interested, in others Mr. Milner is practically alone, so far as known. The bunch of lands next in importance is owned under the desert and placer acts by men from Duluth, Minn., who went there last year. They have what appear to be valuable properties, though little work has yet been done. A still smaller holder is a group of Cincinnati men. Recent press dispatches indicate that what is called the "Utah Iron Company" have holdings there. If so these must be small, unless they have bought properties from old owners, and most of the last of these were tied up by the Colorado Fuel & Iron Company some weeks ago. The estate of the late Bishop Taylor of the Mormon Church is the largest and most important of these holdings. It has been in his family for 40 years and was taken up for iron. It is under bond at a large price.

The Extent of the Deposits.

There is no question as to the existence of iron ore there in very large quantities. No attempt at an estimate of tonnage is of any value, for work done has been so scattering, on the one hand covering such a vast area, that estimates based superficially would appear far too vast for credence; while on the other hand the work has been so shallow and so little is really known of the formation that an estimate based on knowledge would probably be far too small. It is an ore probably chiefly hematite, though what appears on the surface is massive magnetite, exceedingly dense. There is some Bessemer ore; perhaps its proportion will increase with depth of explorations upon the mountain slopes. At present, however, low phosphorus Bessemer ore is very much in the minority. What has been exposed so far will probably average about 56 to 60 per cent. metallic iron.

The iron district has been traced for about 50 miles, in a generally northeast and southwest course. The little deserted village of Iron, where 37 years ago the Mormons built the first blast furnace in the West, is near the west end of the central portion. This portion is quite mountainous, and includes Iron Mountain and its surrounding points and ridges for a length of several miles. The western portion of the iron belt is not so continuously marked and is probably of less value. Northeast from Iron Mountain lies Desert Mound, rising from the level desert, and this presents a very strong and interesting outcropping. Trenching and shaft work done by the Milner interest has shown a large deposit therein. It may be possible, of course, that iron continues from the Iron Mountain elevations clear to Desert Mound, and the Colorado Fuel & Iron Company have taken up all intervening lands. Still further north and east lie Lindsey hills and their magnificent showings, and beyond, across another intervening plain, are more outcroppings and a continuation of the range, though possibly of lesser value than the section from Iron Mountain to Lindsey Hills. This intermediate portion would appear to be more promising. In it much work is under way, the Colorado Fuel & Iron Company alone having nearly 250 men scattered about sinking and drifting, test pitting and opening trenches. Drills will be moved in and if the water question is not too perplexing will be utilized to a considerable degree. Water is very scarce, especially in some portions of the range. The streams are few and very small, but no attempt has yet been made to get water at considerable depth. This is a very serious fact in estimating the future importance of the whole region. In the Lindsey Hills section the Milners are working a considerable force, and as depth is reached in shafts the ore improves in quality and in many place assumes a Bessemer character.

No discussion of the geological character of the country need be entered upon at this time, for it has already been taken up in *The Iron Age*, except to say that the ore lies between a granite and a limestone, and that occasionally volcanic disturbances seem to have thrown out ore through the limestone, raising massive crests of ore surrounded by limestone. But this limestone, though so plentiful, is not of a character suitable for fluxes.

The difficulties of iron manufacturing here seem to be very scarce. They are a lack of water, which alone is enough; then a lack of suitable flux, and, until lately, the absence of a coking coal in all that part of the West. While options on the Milner and Taylor properties were held by F. H. Buhl and P. L. Kimberley, some months ago, they endeavored to find a suitable spot for the manufacture of iron reasonably near these deposits, going so far as the Colorado River canyons in search of water privileges. But these ores, if ever economically assembled for manufacture, must be elsewhere than near the mines.

quite possibly either at the coast, Pueblo or Salt Lake. The Colorado Fuel & Iron Company have within the past few weeks very greatly increased their own water supply at Pueblo by the purchase of extensive rights along streams. Utah Lake, some 20 miles south of Salt Lake City, is expected to furnish a supply for extensive works.

Plans for Mining and Manufacturing.

Mr. Milner informs me that he has recently entered into contracts to mine and deliver for iron works in the Far West 400 tons daily from Desert Mound, and that as soon as the branch of the Oregon Short Line reaches the region will commence shipping. He will probably have his developments there forward enough at that time to make this shipment an easy matter.

Mr. Milner also states that he has plans prepared for an extensive blast furnace and steel making plant to be built on the shores of Utah Lake, and that work on one furnace of about 150 tons capacity will begin this year, if conditions are favorable. He says that the capital for the entire investment is assured. From what sources this money is to come I cannot state, but Mr. Milner is backed by F. H. Buhl in an enormous irrigation undertaking in the Shoshone River Valley. A severe obstacle to any iron making west from Pueblo has been the total lack of proper fuel. Mr. Milner and associates control 30,000 acres of coal lands in Cordingly Canyon and Coal Creek, not far from Castle Gate, on the Rio Grande Western road, that is claimed to be a fine coal for furnace use. I have seen samples of coke made from it that look very well. These coals carry from 0.50 to a trace of sulphur and merely a trace of phosphorus. Coke made from the Coal Creek vein, 10 feet 6 inches thick, analyzes as follows: Fixed carbon, 90.64; ash, 9; sulphur, 0.36. From the "dug out" vein, of about the same thickness, the coke analyzes: Fixed carbon, 91.38; ash, 8.20; sulphur, 0.42. These assays were made by Lerch Bros. of Hibbing, Minn., a most reliable firm. Most of the coal of that general region runs high in sulphur, ash and moisture. This Milner coal averages about 3 per cent. moisture. This body of coking coal is of the highest importance in connection with the development of iron industries in that region. These coal owners plan not only to utilize their mines for coke, but for the immense market of the Pacific, both local and export.

Who may be the Utah Iron Company, capital $1,000,000, who have just filed articles of incorporation at Salt Lake City, I do not know, other than that the names of the Board of Directors include men of prominence. The company claim to be about to sell ore and its products and to intend the erection of plants for their manufacture.

Early Efforts to Make Iron

Any present attempt to make iron from these Iron County ores will not be the first. Years ago the Mormons tried it under difficulties that were, and might have seemed to them, insuperable. It is an instance of the brave daring of those early Mormons, of their belief in the omnipotence of labor, of their wonderful capacity for work, that they should have tried at all. Forty years ago the then Bishop Taylor, now dead, was in charge of the business of the church in southwestern Utah. He found these iron mountains and took a part of them. At a point 250 miles south from Salt Lake City he laid out a little furnace plant and built it. The way from Salt Lake was all wild, barren and waterless desert, infested by Indians. What material he could not find on the ground he brought this way by ox team. There were no rail or other roads. The little village of Iron still stands, deserted, as it has stood since his attempt failed. There is the brick church and school house, the brick and adobe houses, some of them with no little attempt at ornament and constructive detail, and the furnace and its charcoal ...lns. The furnace stands in the end of a brick cast house 40 x 20 feet. It is built up of mud and granite and mortar made on the spot, bound together by strap iron, and the outside dimensions of the furnace proper are 66 inches square and 10 feet high to a smaller top. The ore was shoveled from the ground to a platform and then into an opening in the side of the furnace. Air was delivered cold from a fan run by water power, and the tuyeres were lengths of stove pipe protected as much as possible. Crude as this was it must have made iron, for there is some still there. Evidently the builders intended a far more elaborate plant, for they have left the cut granite foundations of furnace, cast house, engine and boiler houses, stock house, &c., that were to have been of much greater size. This larger furnace was evidently intended to be something like 8 feet in diameter. What stopped operations I do not know, probably the realization that water was insufficient. But in order to operate the smaller furnace and a foundry in connection these people actually hauled clear from Salt Lake tons of scrap. This was, as I have said, 250 miles of arid desert. Labor was surely their stock in trade; they had lots of it, more of it than of any other commodity. They stopped at no obstacle that labor could overcome or that time might remedy. The spectacle of this crude little furnace, with all its makeshifts and records of brave effort, is one of the most impressive things that has ever come under my ken.

D. E. W.

Amalgamated Association Insurance.

An important subject that will be considered by the Advisory Board of the Amalgamated Association of Iron, Steel and Tin Workers, at their next meeting in the early part of August, will be the establishment of a benefit fund. It was decided at the Columbus convention last April that the association should embark in the insurance business. The plan outlined at that time included a per capita taxation of 40 cents annually for each member; in case of death his relatives or heirs to receive the sum of $100 from the Amalgamated Association. Some members of the association are said to be strongly in favor of increasing the assessment rate, and thereby enlarging the insurance. This matter will come up for settlement before the Executive Board of the association, which is composed of President T. J. Shaffer, Secretary John Williams, Assistant Secretary M. F. Tighe, Ben I. Davis, William Jenkins and John Taylor. It is contemplated to make the insurance plan effective from October 1 next.

Another important subject to be considered by the committee will be the adoption of plans for carrying out a more vigorous campaign among the unorganized mills. It is said that the work of forming new local associations has been going on actively of late, six new local unions having been organized within the last few weeks, adding nearly 1000 new members to the association, and it is the intention of the officers to prosecute this work with still greater vigor in the future.

The July meeting of the New England Foundrymen's Association was held at Point Shirley Club, Winthrop, Mass., Wednesday, the 8th inst. Members and guests to the number of 50 enjoyed a shore dinner with extras, which "extras" were furnished by the Boston members. At the close of the dinner President H. A. Carpenter of Providence called the company to order and a brief business session was held, after which the members dispersed, some to remain at the club house until evening and others returning to the city at once. It was voted to hold the next meeting in Providence, R. I., and that arrangements for the entertainment be in the hands of the Providence members. John Magee presented a report from the committee appointed to consider the advisability of joining with two other organizations in the establishment and maintenance of a labor bureau. This report was adopted and the preseident named John Magee of the Magee Foundry Company and Secretary Fred. F. Stockwell of Cambridge to represent the association at a conference with two members from each of the following organizations: Boston Metal Trades Association, New England Iron League; the appointment to hold for one year. The delegates were given full power to act for the association.

In the courts at Pittsburgh last week a bill in equity was filed by the East End Roofing Company against Local Union No. 12, Amalgamated Sheet Metal Workers, and its members. There have been some differences between the company and the defendant organization, and the court is asked to restrain the members from interfering with the employees of the plaintiff in their duty.

Results Observed on the Philadelphia & Reading Railway in Connection with Inspection of Steel Rails.*

BY ROBERT JOB, READING, PA.

1. As to detection of coarse grain in steel rails by means of drop test: Our practice has proved beyond any question that the ordinary drop test with a weight of 2000 pounds falling 20 feet upon butts about 4½ feet long and 3 feet between supports does not cause fracture of coarse grained rails, 80 pounds and over, excepting when brittleness due to other causes, such as piping, burning of steel, &c., is present. Large microstructure is due to slow, undisturbed cooling from a high temperature and causes lessened ductility and lessened strength under impact. Consequently it should be perfectly feasible so to proportion the weight and hight of the drop as to produce fracture if the grain exceeds a certain size. Since service results (paragraph 4) show that resistance to wear—other things being equal—increases with a decrease of the size of the grain, it follows that a test so arranged must be of great value as an indication of the service life of steel.

2. As to relation of microstructure to appearance of fractured surfaces: When the fractured surface appears coarse grained the microstructure is coarse grained. When the fractured surface appears fine grained the microstructure may or may not be fine grained. In other words, steel of coarse microstructure may be made to show a fairly fine grained fracture under certain conditions of fracturing. When the microstructure is fine grained the fractured surface appears fine grained.

To illustrate the relations existing at given points between the appearance of the grain in microstructure and upon fractured surfaces when the conditions attending the fractures are identical throughout, we took a steel slab about 6 inches wide, 1½ inches thick and 2 feet long, let one end remain in the fire just below the melting temperature for two hours, the other end being cool. The slab was then removed from the fire and allowed to cool in air, and a slot was cut about ¼ inch deep along the slab longitudinally. The slab was fractured longitudinally under the steam hammer and the surface was photographed one-half size, Fig. III, showing gradual change in size of grain from fine to coarse. (Metcalf's Experiment.) The fracture of the steel was then photographed two diameters, Fig. I, at points 1, 2 and 3 indicated upon Fig. III. Microsections were taken from the same points, and appear (50 diameters) in Fig. II. It will be seen that under these conditions of fracturing there is a close general relation between the size of the grain of the fractured surface as seen by the eye and that shown in the microstructure at corresponding points. It should, however, be noted that when a number of rails from the same rolling are fractured the surfaces may vary considerably from fine to coarse, although the general microstructure is usually quite constant because the latter is not subject to the varying conditions which attend the taking of different fractures. The composition of the steel slab follows: Carbon, 0.090; manganese, 0.277; phosphorus, 0.135; sulphur, 0.106.

3. As to the relations between appearance of fracture

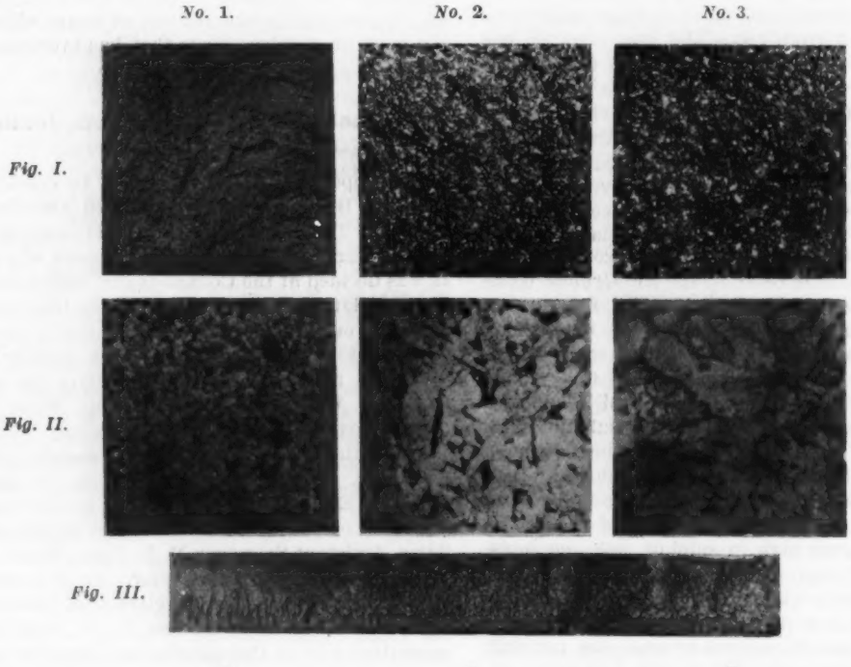


Fig. IV.—Coarse Grained 90-Pound Rail, Center of Head.

Fig. V.—Fairly Fine Grained 90-Pound Rail, Center of Head.

* Read before the Delaware Water Gap meeting of the American Society for Testing Materials.

and poor service wear: In most cases rails of fairly solid steel fracturing in service or giving poor wear have shown coarse grained fracture, indicating a high finishing temperature. In relatively few cases the fracture has appeared fairly fine grained, but upon polishing and etching a section the structure has always appeared coarse.

4. As to the relations between coarse microstructure and poor wearing qualities of rails in service: Upon a lot of 75,000 tons of 90-pound rails observed during a period of five years, we have found 15 times as many fractures in the case of rails having coarse microstructure, Fig. IV, as in those of a much finer form, Fig. V. We have also invariably found with equal solidity of steel and with other conditions approximately equal a marked increase in rapidity of wear of steel of the coarse microstructure, as compared with that of the finer.

5. As to the relation between degree of shrinkage of rails after hot saws and service life: Rails with a shrinkage of 7 inches and over on a 30-foot length have shown a relatively large number of fractures and rapid wear. Rails with a shrinkage of 6¼ inches and less on a 30-foot length, with rapid rolling and without holding between passes, have shown very largely decreased number of fractures together with increased capacity for wear.

6. As to the relations between piping of rails and fractures in service and under the drop test: A large majority of the rails fractured in service show piping to a considerable extent, either directly upon the fractured surface or else when the cross section is polished and etched.

7. As to the tests necessary to insure tough, well wearing rails: Our practice during the past year has shown good results under the following conditions: Absence of brittleness is insured in 90-pound rails by a drop test of 2000 pounds, falling 23 feet upon rail butts about 4½ feet long, 3 feet between supports, one test being made upon each heat, each test butt being taken from the top of an ingot. Toughness and moderately slow wear, if the steel is solid, is insured by enforcing the following practice, viz.: The temperature of the ingot or bloom to be such that with rapid rolling and without holding before or in the finishing passes or subsequently, and without artificial cooling after leaving the last pass, the distance between the hot saws shall not exceed 30 feet 6 inches for a 30-foot rail, or a proportionate distance for other lengths. Solidity of steel can be insured only by careful inspection throughout the process of manufacture, especially as regards cropping. Suitable chemical composition is essential to the best service results. For 90-pound rails we prefer about the following, with the ordinary rolling practice: Carbon, 0.53 to 0.63 per cent.; phosphorus, below 0.07; sulphur, below 0.07; manganese, 0.90 to 1.20.

Production of Aluminum in 1902.

The following report on the production of aluminum in the calendar year 1902, by Joseph Struthers, is taken from Mineral Resources of the United States, 1902:

The production of aluminum in the United States during 1902 was approximately 7,300,000 pounds, as compared with 7,150,000 pounds in 1901, an increase of 150,000 pounds. The Pittsburg Reduction Company, operating the Hall patents, continue to be the sole producers of aluminum in the United States, and, although the company are in patent litigation with the Cowles Electric Smelting & Aluminum Company of Cleveland, their plants are being developed vigorously. They have in operation 11,000 horse-power at Niagara Falls, N. Y., and 5000 horse-power at Shawinigan Falls, Quebec, Canada (the Royal Aluminum Company), a total of 16,000 horse-power, which is equivalent to a capacity of 4500 tons of metal yearly, or more than the output of the rest of the world. In addition the Pittsburgh company have purchased a large tract at Massena, N. Y., and are installing a large plant on the St. Lawrence River, which will consist of four 300 horse-power sets generating 1500 volts. The increased activity on the part of the company has been due to the fact that some of their fundamental patents will expire within a few years, and they are striving to perfect the methods employed to such an extent that after the expiration of the patents they will be in position to compete successfully with new producers that may enter the field.

Although the demand for aluminum has increased from the more extended use of the metal for the manufacture of electrical conductors and special alloys, the price per pound has continued practically stationary throughout the years 1901 and 1902, as is detailed in the subjoined table:

Prices of Aluminum and Its Alloys During 1901 *and* 1902.

	Small lots. Cents.	100-pound lots. Cents.	1000-pound lots. Cents.	2000-pound lots. Cents.
No. 1 (aluminum, 99.75 per cent.)	37	35	34	33
No. 2 (aluminum, 90 per cent.)	34	33	32	31
Nickel-aluminum casting metal (10 per cent. nickel)	39	35	34	33
Special casting alloy (80 per cent. aluminum)	35	30	29	27

An international agreement between all of the aluminum producers has been drawn up and the price of ingot aluminum fixed for 1903. The following table shows the production of aluminum in the United States for each year since the inception of the industry in 1883:

Production of Aluminum in the United States, 1883-1902.

Year.	Quantity. Pounds.	Year.	Quantity. Pounds.
1883	83	1894	550,000
1884	150	1895	920,000
1885	283	1896	1,300,000
1886	3,000	1897	4,000,000
1887	18,000	1898	5,200,000
1888	19,000	1899	6,500,000
1889	47,468	1900	7,150,000
1890	61,281	1901	7,150,000
1891	150,000	1902	7,300,000
1892	259,885		
1893	333,629	Total	40,902,779

There are in the world at the present time five companies who produce aluminum at plants at nine locations, the details of their equipment being given in the subjoined table:

Aluminum Works in Europe and America, 1902.

Name of company.	Locality of works.	Horse power. Available.	Horse power. In use.*	Process.	Capital.
The Pittsburgh Reduction Company	Niagara Falls.	....	11,000	Hall.	$1,600,000
The Pittsburgh Reduction Company	Niagara Falls.	....		Hall.	.....
The Pittsburgh Reduction Company (Royal Aluminum Company)	Shawinigan Falls.	6,000	5,000	Hall.	.....
The British Aluminum Company	Foyers.	14,000	5,000	Heroult.	3,360,000
Société Electro-Metallique Française	Le Pdaz.	12,500	5,000	Heroult.	2,880,000
Compagnie des Produits Chimiques d'Alais	St. Michel.	6,000	2,000	Hall & Minet.	.....
Société Anonyme pour l'Industrie de l'Aluminium	Neuhausen.	4,000	4,000	Heroult.	
Société Anonyme pour l'Industrie de l'Aluminium	Rheinfelden.	5,000	5,000	Heroult.	3,077,000
Société Anonyme pour l'Industrie de l'Aluminium	Lend Gastein.	5,000	(?)	Heroult.	

* With the exception of the American and Canadian works, all these works manufacture other products in addition to aluminum.

For several years past the various companies have continued their secretive policy concerning the development of the industry, and practically nothing has been published in regard to modern improvements beyond the descriptions of patents, which have been granted mainly for the purification of bauxite, the chief raw material used in the manufacture of the metal.

Aluminum is used mainly for the transmission of electric currents, although a large proportion of the output is manufactured into articles for domestic and culinary use. It is also utilized for the construction of parts of machines and apparatus which require lightness rather than great strength, and in the manufacture of special alloys. Two other uses of growing importance are for lithographic work, the metal being used as a substitute for stone and zinc, and for the production of intense heat by the combustion of the metal in powder.

Notes from Great Britain.

The Markets.

LONDON, July 4, 1903.—This week the market has been, if anything, a little brighter, owing, doubtless, to the turn of the quarter, with its ensuing influx of orders, which are often held over. But in general the home trade must be considered stagnant. There has been some briskness in black sheets. For some months past prices have been beared downward, and apparently rock bottom prices have now been reached, with the result that galvanizers are buying in good quantities. This improved buying has slightly raised price, and manufacturers are asking £7 5s. doubles. Current contracts in this line in a number of instances have been worked off at the turn of the quarter, and as business on the whole is brisk in this department consumers are unable to hold off any longer. It is anticipated that their requirements will be large. The demand for bars, whether marked or unmarked, has not yet improved, and foreign competition becomes more keen, so that the immediate prospect is not alluring. The finished steel trade is not so brisk as it has been up to quite recently. The depression in the Lancashire cotton trade has hit the Lancashire engineers rather hard, and in consequence they are curtailing their purchases.

The shipments of pig iron for June from the Tees ports, Middlesbrough and Skinningrove, were very satisfactory, far exceeding the average, which has been for a number of years a little over 100,000 tons. The delivery for the month, 119,934 tons, has only once been exceeded in the corresponding month—viz., in 1899, when over 135,000 tons went forward. The large delivery now being made for shipment exceeds the production, so that about 10,000 tons have had to be withdrawn from the Cleveland warrant stores during the month. This stock had been growing previously during the year. The June shipment gives 41,000 tons excess over the corresponding month of 1902. Sixty-five thousand, two hundred and ninety-two tons went to coastwise ports, 48,558 tons, of which were for Scotland, the largest delivery for that account for more than 12 months. The shipments, foreign, were 54,642 tons, nearly 17,000 tons going to Germany and Holland; 10,000 tons to Italy, 7800 tons to Norway and Sweden, 6309 tons to America on orders received early in the year, delivery having been deferred. Taking the first half of the year, the shipments have never been larger, except in 1899, when 677,000 tons were shipped, and again in 1897, when the delivery of 633,866 tons for the half year just ended was also slightly exceeded. Scotland stands in the position of having had more iron sent by sea from the Tees than ever before in the corresponding six months, 262,931 tons having been forwarded. The shipment of manufactured iron and steel last month, 36,464 tons, was as against 29,906 tons in June last year. Prices to-day are as under:

Pig Iron: Scotch, 52 shillings 4½ pence; Middlesbrough, 46 shillings 10½ pence. Forge qualities: Staffordshire cinder, 48 shillings to 48 shillings 6 pence; part mine, 49 to 50 shillings; all mine, 60 shillings to 67 shillings 6 pence; best do., 80 to 85 shillings; cold blast, 95 to 100 shillings; Northamptonshire, 47 shillings to 48 shillings 6 pence; Derbyshire, 50 to 51 shillings; North Staffordshire, 50 shillings 6 pence to 51 shillings 6 pence; Lincolnshire, 53 shillings 1 pence.

Finished Iron: Marked bars, £8 10s.; Earl of Dudley's brand, £9 2s. 6d.; second grade, £7 10s.; common unmarked bars, £6 5s. to £6 10s.; North Staffordshire bars, £6 16s.; angles, £6 15s. to £7; sheets, singles, £7 2s. 6d. to £7 5s.; doubles, £7 5s. to £7 7s. 6d.; trebles, £7 17s. 6d. to £8; galvanized corrugated sheets, f.o.b. Liverpool, £11 5s. to £11 10s.; hoop iron, £6 17s. 6d. to £7 2s. 6d.; nail rod and rivet iron, £7 5s. to £7 10s.; gas strip, £6 12s. 6d. to £6 15s.

Steel: Bessemer billets, £4 15s. to £4 17s. 6d.; Siemens billets, £4 17s. 6d. to £5; mild steel bars, £6 7s. 6d. to £7 2s. 6d.; steel plates, £6 to £7; steel girders, £5 15s. to £6 5s.; steel angles, £5 10s. to £6 7s. 6d.

Future Iron Ore Resources.

The British Iron Trade Association has requested the Government to give instruction to its consular officers in all foreign countries to make a systematic inquiry into the available supplies of iron ore in their several districts, so that British capitalists and ironmasters may possess themselves of the necessary data as to the sources open to them in the future. There can be no doubt that the future supply of iron ore is a source of considerable anxiety to far sighted British ironmasters. It is worth noting that Great Britain did not begin to import foreign iron ore on a large scale until about 25 years ago. Since then her imports from Spain and other countries have increased year by year until they now represent about one-third of the total iron ore consumption. Side by side with this increase in imported ore, the home consumption has fallen from over 18,000,000 tons to between 12,000,000 and 14,000,000 tons. Contrary to the general belief, there is an abundance of iron ore still available in most of the leading districts, except Scotland and South Staffordshire. Cleveland is computed to have sufficient iron ore left to supply 6,000,000 tons a year for 100 years at least. The difficulty is that it does not suit the acid process. As engineers and shipbuilders control the conditions of steel production, and as they do not want basic steel, it follows that other sources of supply have been rendered inevitable.

A few weeks ago I gave full particulars as to the position of the ore supply in Bilbao. In addition to the old ore field there, new supplies have been opened up to the extent of about 2,250,000 tons a year. Iron ores are now being worked in nine provinces of Spain, in addition to Viscaya. The increased freightage charges from the most likely Spanish new deposits in Almeria, Murcia and Sevilla, which are more remote from the seaboard and from the centers of consumption, are, of course, a serious consideration. But countries other than Spain are being prospected, notably Norway and Sweden, where the output now exceeds 2,000,000 tons a year. In Norway the Dunderland ores are expected to be opened up shortly. If the expectation of the investors in the Edison system should be realized, then large supplies for the British iron trade at a relatively low cost will be insured. At present, however, we cannot speak certainly about the quality of the ore or its suitability. Elban ores are dwindling, and Algeria can spare practically nothing after providing for French claims. Still, there is nothing to worry about at the moment.

Talking about inquiries, it may interest readers of *The Iron Age* to learn that the German Government has appointed a commission, consisting of three officials drawn from various departments and two ironmasters, with an official from the Ministry of Commerce as secretary, for the purpose of considering the position of iron and steel and allied trades, not only in Germany, but in Great Britain and the United States, and practically all the countries which at present compete, or may in the future compete, with German iron and steel productions.

The Engineering Standards Committee.

A pamphlet giving a short account of the Engineering Standards Committee and its work has been issued by Robert Atkinson (Limited), the compilers and publishers of the British Engineering Standards Coded Lists, issued by authority of the Standards Committee. It contains a list of the various committees and subcommittees engaged in considering the question of standardization, together with the names of the members who compose them and a statement of the work with which each is occupied. The Committee on Sections used in shipbuilding, such as bulb angles, bulb tees, bulb plates, &c., has been engaged in deciding on a series of sections which, on the one hand, would give sufficient graduation, and on the other, would be as small as possible, so as to reduce to a minimum the plant and stock of rolls to be kept by manufacturers, and a further subcommittee is deliberating on the most suitable tests to be applied to iron and steel material used in the construction of ships and their machinery, with the object of arriving at a common basis of agreement between the many divergent specifications and restrictions at present in vogue. The Committee on Bridges and General Building Construction has been chiefly engaged in drawing up a series of standard beams and tees, and in the consideration of "equal and unequal angles." Their standard list of beams includes only 30 sections, a considerable reduction on the number formerly in use, and some of the leading firms have already announced that they are returning their rolls to comply with the committee's standard list. In railroad matters there is a committee on rolling stock underframes, another on locomotives, with subcommittees on component parts and types, on steel plates, on tires, axles and springs and on copper and its alloys, and a third on rails. The last mentioned is divided into two subcommittees; the first, on railroad rails, is engaged in drawing up a series of standard flat bottom rails and bull-headed rails, the former beginning at 60 pounds per yard and rising by increments of 5 to 105 pounds per yard, and the latter at 20 pounds per yard and rising by increments of 5 to 110 pounds per yard; while the second, on tramway rails,

has agreed on a standard series advancing by steps of 5 pounds, from 90 to 110 pounds per yard, which has already been finally approved by the Board of Trade. The Committee on Electrical Plant is divided into four subcommittees. One, on generators, motors and transformers, is collecting evidence as to how far standardization can be introduced in the construction of those machines and their component materials. Another, on temperatures, is conducting experiments to determine the ability of different insulating materials to withstand heat, and also the deteriorating effects produced by their exposure to heat over long periods. A third is considering the standardization of cables and of underground conduits other than tramway conduits, and is engaged in drawing up standard tables which should simplify and cheapen the manufacture of cables. The fourth is occupied in the preparation of standard tables and specifications for wires and with other matters directly affecting the construction of telegraphs and telephones. The remaining committees are concerned with screw threads and limit gauges, with pipe flanges and with cement, there being also a committee for publications and calculations, and another for finance. Some two dozen representatives of public departments, such as the War Office, the Admiralty, the Board of Trade and the India Office, are serving on these different committees, and the Government has further shown its appreciation of the work by coming to its financial assistance with a grant of £3000.

A Memorial to Bessemer.

It is stated, I think with authority, that Sir Henry Bessemer always had a special aversion to technical education. In inaugurating a memorial to Sir Henry Bessemer, therefore, it has been necessary to walk delicately. An influentially attended meeting was held this week at the Mansion House for the purpose. It was moved that to commemorate the great achievements of the late Sir Henry Bessemer, "such commemoration should have for its object some educational work as far reaching in its beneficient influence as are the results of Bessemer's great invention." The following statement was read by the chairman of the meeting, and to it I need add nothing:

"In the opinion of those best able to judge the time has arrived for commemorating the extraordinary achievements of the late Sir Henry Bessemer. The remarkable development of metallurgical and engineering industries during the last half century is in large measure the result of Bessemer's great invention, and it is the duty not only of his own countrymen but also of all the nations who have so greatly profited by his life's work worthily to commemorate the farreaching results of his genius. The establishment of completely equipped metallurgical teaching and research works in London will form the first object of the memorial, for which the practical co-operation and financial aid of the industrial world is asked. The primary aim will be the thorough technical instruction of mining and metallurgical students. Metallurgical tests and research of all kinds, for which facilities are not available in Birmingham or Sheffield, will be carried out at these works on a practical scale by engineers and others. In this way advanced students will be afforded opportunities for the acquirement of practical knowledge and for original research which it would be difficult to obtain in any other way. While the advantage of such work to the whole world, from the technical and industrial point of view, cannot be exaggerated, a more fitting and appropriate memorial, or one more likely to have met with Bessemer's warmest approval, could not be found. The second object of the memorial will be a system of grants, in the form of scholarships, for postgraduate courses in specialized practical work in London and the great metallurgical centers. The work of Bessemer is so well known throughout the civilized world that it is confidently believed the memorial will receive universal support."

The committee of Sheffield University College have acquired the Caledonian Works, near to the Technical School, and on the site steel works are being built. The works will form an annex of the present metallurgical department, and in them will be carried out the latest developments in making crucible, open hearth and Bessemer steels on a considerable scale. The object aimed at is the scientific and practical education of metallurgists, the training of men alike in practical and highest scientific knowledge. The works will be run entirely by electrical power, and everything about them will be of the most up to date character. The cost is estimated at £10,000, and it is hoped that they will be completed by the end of the year. S. G. H.

Some Features of the English Brass Trade.

The majority of the English brass products find a market similar to our own, but there is one outlet which, it is believed, is not yet obtained by the brass manufacturers of the United States. We refer to the African division of the industry to which very large quantities of brass in a large diversity of forms are regularly exported and exchanged for the products of this tropical country. There has always been, among this African population, a liking for anything of a golden color and brass, therefore, has become a form of money. Birmingham, in England, the center of the English brass industry, is often called the "savages' mint," and the manufacture of this money gives employment to many people.

The money, if it may be called such, consists of two kinds. One, a copper alloy, termed "Manillas," is rather peculiar in shape. It is a rather thick ring, about 2 inches long with the ends turning inward. The weight is about 2 ounces. The color resembles the ordinary English penny. The mixture appears to be one which must be kept within narrow limits, as the Africans insist upon its being the right color, correct in shape, and possessing a musical "ring." It must also allow of being broken in the hand. It is quite amusing to find such rigid specifications for brass in this barbarous country. The other form of money is in the shape of brass rods of the usual alloy. Yellow brass answers perfectly for this. These rods are a standard article for export to this country; in fact, in the price-lists of the English brass makers "Kaffir Rods" are regularly listed just as carefully as low brass or gilding is in our own country. These rods are straightened and their value depends entirely on their length.

Another peculiar phase of the English brass industry is the manufacture of brass coffins for the native chiefs of Africa. These are made of solid brass and are of large dimensions, suggesting that the chief desires some of his favorite wives buried with him. The dimensions are usually 8 feet long, 3 feet deep and 4 feet wide. The coffins are provided with lids and several padlocks both inside and out, which shows that the desire is manifested to lock himself in. The coffins are highly ornamented and polished. The weight of such "standard" coffins is about 700 pounds. Having no recognized currency, the chiefs are obliged to barter whatever will be taken in exchange for them. Usually gold dust or elephants' tusks are exchanged, but a case is noted in which several thousand monkey skins were traded for one of these coffins.

Another interesting feature of the Birmingham brass trade is the manufacture of cast brass idols and gods for these colored heathen. Such articles are only made, it is said, by the smaller manufactories and "are not carried in stock, but only made on order." We do not find these listed in the English brass lists, but from the peculiarity of such an industry shall expect to find them later. Idols with two pair of arms will probably be listed at twice the cost of those with one, and there will undoubtedly be "no charge for tinning."

It is interesting to note that there is now considerable antagonism springing up in England against the selling, by a Christian country, of such emblems of idolatry and paganism. It has been brought about by the various religious organizations in that country, but we cannot say how far reaching its influence is up to the present time.—*The Metal Industry.*

A matter of the greatest importance to the street railway interests of Chicago was the verdict of Judge Grosscup of the United States Circuit Court on July 10, when he declared that the 99-year act is valid, thereby giving the companies the rights in the streets of Chicago for many years yet, even without further grants from the City Council. The case will, in all probability, be appealed, but it is expected that the Supreme Court will sustain

the decision of the Circuit Court. The case of the companies has seemed a strong one all along and has gained further strength from the opinion of so just and eminent an authority as Judge Grosscup.

Canada's New Iron Bounties.

On Wednesday night the Finance Minister introduced into the Dominion House of Commons his resolutions respecting the bounties on iron and steel. They are as follows:

The Governor in Council may authorize payment of the following bounties on the undermentioned articles manufactured in Canada from steel produced in Canada, from ingredients of which not less than 50 per cent. of the weight thereof consists of pig iron made in Canada—viz.:

On rolled, round wire rods, not over ⅝ inch in diameter, when sold to wire manufacturers for use in making wire in their own factories in Canada, a bounty of $6 per ton.

On rolled angles, tees, channels, beams, joists, girders or bridge building or structural rolled sections, and on other rolled shapes not round, oval, square or flat, weighing not less than 35 pounds per lineal yard, and also on flat eye bar blanks, when sold for consumption in Canada, a bounty of $3 per ton.

On rolled plates not less than 30 inches in width and not less than ¼ inch in thickness, when sold for consumption in Canada for manufacturing purposes for which such plates are usually required, and not to include plates to be sheared into plates of less width, a bounty of $3 per ton.

The Governor in Council may make regulations to carry out the intentions of the foregoing section.

That Chapter 8 of the Statutes of 1899 be so amended as to provide that the bounties on steel and iron authorized by Chapter 6 of the Statutes of 1897 shall be continued until June 30, 1907, and that the rates of such bounties shall be as follows:

From July 1, 1903, to June 30, 1904, both inclusive, the bounties shall be 90 per cent. of the amount fixed by the said Chapter 6 of the Statutes of 1897.

From July 1, 1904, to June 30, 1905, both inclusive, the bounties shall be 75 per cent. of the amount fixed by the said chapter.

From July 1, 1905, to June 30, 1906, both inclusive, the bounties shall be 55 per cent. of the amount fixed by the said chapter.

From July 1, 1906, to June 30, 1907, both inclusive, the bounties shall be 35 per cent. of the amount fixed by the said chapter.

The Government decided not to treat the Newfoundland ore as a domestic ore in regard to the duties payable, although the Dominion Iron & Steel Company made an application to that effect.

The change in the rate of scaling down the bounties on pig iron and steel billets is advantageous. It means that the assistance for the production of these commodities shall be the same in the fiscal year just opened as it was in that just closed. But the bounties are to terminate at the time fixed in the act of 1899—that is, in 1907. As to the new bounties—those on structural forms, on wire rods and on large plates—no period for their continuance is specified.

In his budget speech, it will be remembered, Mr. Fielding announced that steel rails would be protected by a duty of $7 a ton as soon as it was shown that the quantity and quality required in Canada were being turned out here.

Manufacturers of iron and steel are not entirely satisfied with the plan of assisting their industry by extending the bounty system to articles made from the billets. Bounties cannot be piled on bounties without provoking public disapproval. For, no matter how successful the expedient is, no matter how much domestic competition it may breed, the public treasury will have to pay out the same amounts per ton on the increased output. There is no disguising this taxation. Its incidence is on the consuming public, who contribute to the revenue chiefly by way of customs duties on other things. From the proceeds of the dutiable list of the tariff must come the money to subsidize the steel industry. It is generally held that instead of levying customs duties on other articles and paying part of the proceeds to the iron and steel makers, it would be better to put sufficiently high duties directly on imports of iron and steel, and let their own duties be their own protection. Protected in that way the question of who pays the duty would be one as to which there would be some uncertainty in the public mind. But the bounties come so manifestly out of the pockets of the people that they are likely to be unpopular.

Speaking for the Canadian Manufacturers' Association, Geo. E. Drummond of the Canadian Iron Furnace Company said:

I have read with much interest Hon. Mr. Fielding's notice of resolution with regard to the iron and steel bounties.

There can be no question but that the provisions he suggests will be of very great value to the iron and steel makers of this country at the present juncture, and more particularly to the works at Sydney, because they deal especially with articles the manufacture of which, I understand, they are about ready to undertake.

Presuming, however, that the intention of the Government is to gradually reduce the special bounties proposed on wire rods, structural steel and plates coincident with the reduction of bounties on the lines of manufacture provided for in the old schedule, then the arrangement must naturally be viewed as merely temporary in nature, sufficient no doubt to relieve the immediate situation at Sydney, but not sufficient to permanently encourage and build up the native iron and steel industry, unless indeed provision is made to increase the Canadian customs duties as the bounties decrease.

Aside from the arrangement of bounties, a revision of the customs tariff is not only desirable but necessary, and that at the earliest possible date. The tariff must conserve to us our home market, and as nearly as possible it should afford an equal degree of protection to the labor and capital employed in the making of every article in the iron and steel schedule, otherwise we cannot expect in Canada a natural development of the business. In this respect the present tariff has not afforded sufficient encouragement. The bounties will help temporarily, but a full revision of tariff must, in my opinion, be undertaken if the business is to be put upon a permanently solid basis.

Mr. Clergue expressed himself as satisfied with the arrangement.

Wire rods, now to be aided by a bounty of $6 a ton, are on the free list. Angles, tees, joists and structural rolled sections exceeding 35 pounds to the yard, and rolled plates not less than 30 inches wide, are subject to a duty of 10 per cent. With the bounty of $3 a ton their total protection at present prices is about $6.80 a ton.

Upon the announcement of Mr. Fielding's scheme the Dominion Iron & Steel Company's directors decided to apply the proceeds of the $1,500,000 of bonds they had underwritten to the completion of the wire rod, rail and structural steel mills. Of the rod and structural form mills the foundations are already laid, and arrangements have been made with German manufacturers for the machinery required. It is said to be the intention of the company to discontinue after the expiration of pending contracts the selling of billets to American mills. Also there is to be no further selling of pig iron. It will all be turned into steel, which will be converted into products.

Of wire rods there were imported into Canada in the fiscal year ending June 30, 1902, 1,103,641 hundredweight, of which 883,878 hundredweight came from the United States. Of plates the imports were about 195,000 tons. About 28,000 tons of structural steel came in.

Lead Bounties.

The following resolution relating to the lead bounty has also been introduced:

The Governor in Council may authorize the payment of a bounty of 75 cents per 100 pounds on lead contained in lead bearing ores mined in Canada; such bounty to be paid to the producer or vender of such ores upon evidence that such ores have been smelted in Canada. Provided that the sum to be paid as such bounty shall not exceed $500,000 in any fiscal year. Provided also that when it appears to the satisfaction of the minister charged with the administration of the act that the standard price of pig lead in London, England, exceeds £12 10s. sterling per ton of 2240 pounds such bounty shall be reduced proportionately by the amount of such excess.

Payment of the said bounty may be made from time to time to the extent of 60 per cent. of the full bounty authorized, subject to the adjustment at the close of each fiscal year. If at the close of any fiscal year it shall appear that during the year the quantity of lead produced, on which the bounty is authorized, exceeds 33,333 tons of 2000 pounds, the rate of bounty shall be reduced to such sum as will bring the payments for the year within the limits mentioned ($500,000).

If at any time it shall apear to the satisfaction of the Governor in Council that the charges for transportation and treatment of lead ores in Canada are excessive, or that there is any discrimination which prevents the smelting of such ores in Canada on fair and reasonable terms, the Governor in Council may authorize the payment of bounty at such reduced rate as may be deemed just on the lead contained in such ore mined in Canada and exported for treatment abroad.

The said bounties shall cease and determine on June 30, 1908.

The Governor in Council may make regulations for carrying out the intentions of this act.

Binder Twine Bounty.

On the same day as the steel bounties were made known the Minister of Finance also presented the following resolution relating to a binder twine bounty:

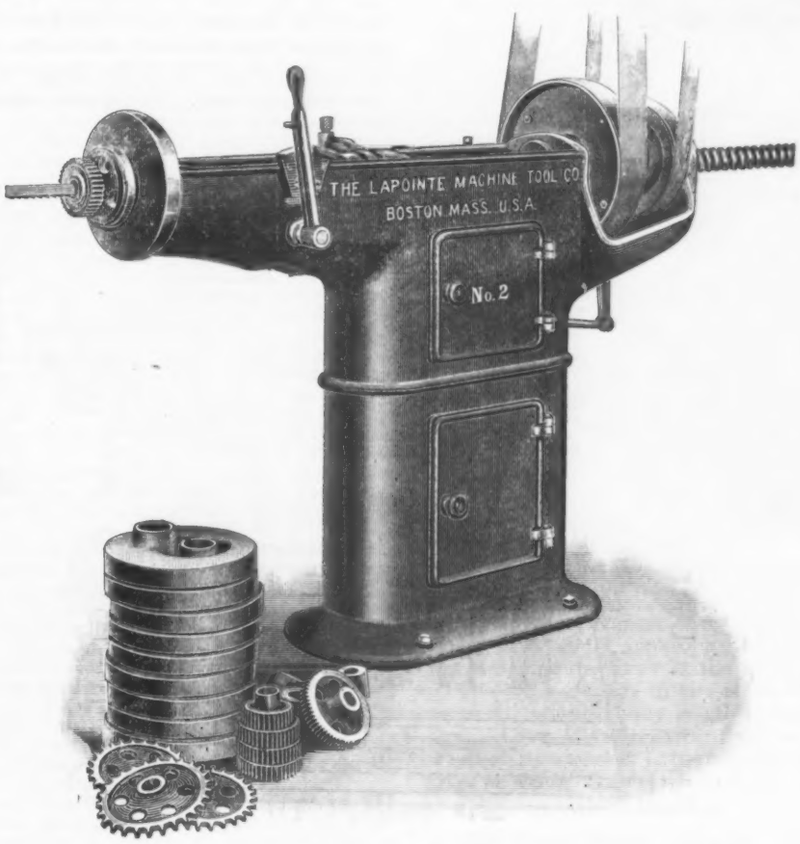
The Governor in Council may authorize the payment of a bounty to any corporation, firm or person manufacturing binder twine in Canada, such bounty to be equal to the amount paid as export duty in the Philippine Islands on Manila fiber produced in such islands and used in the manufacture of binder twine in Canada.

Such bounty shall only be payable in respect of binder twine manufactured on or after September 1, 1902. Provided, however, that the bounty shall not exceed ¾ cent per pound on the Manila fiber so used in the manufacture of binder twine.

For the reason that the export duty on manila fiber is refunded to American manufacturers by the United States Government, the Dominion Government decided to give by way of a bounty equivalent treatment to the Canadian manufacturers. There are 11 binder twine factories in Canada, situated in the following places: Halifax, St. John, Montreal, Kingston, Toronto, Peterboro, Brantford (two), Chatham, Walkerton and Brandon, Man. About 75 per cent. of the twine used in Canada comes from the United States. C. A. C. J.

The New Lapointe Key Seater.

The machine here illustrated is intended for the rapid cutting of keyways which must be of a standard size. A taper cutter is made in the shape of a saw, and passes through a slotted bushing on which the work to be splined is mounted. In this way the work is done in only one movement of the cutter, and the average time for cutting the keyways is one-half minute. The work requires no fastening or setting, and thus relieves the operator of any responsibility as to the quality of the work when finished. As shown in the cut, two or three pieces of different shapes or diameters with the same size of hole can be done at the same time, in which case the amount of time necessary for each piece is only a very few seconds. In the illustration two different styles of gears are being done at the same time, one being a worm gear and the other a plain gear. Change gears can be done three or four at the same time. The system is also adapted to a variety of work, such as cutting oil channels in pulleys or bearings and for broaching square or hexagon holes. The machine has automatic stops both ways and yet requiries no adjustment whatever, as the system guarantees the quality of the work performed on it. This machine is built by the Lapointe Machine Tool Company, 36 Hartford street, Boston.



THE LAPOINTE KEY SEATER.

The Drawback on Black and Galvanized Sheets and Roofing.

In response to an application by the McCullough Iron Company of Wilmington, Del., the Treasury Department has made the following ruling:

On the exportation of black sheets and roofing (flat and corrugated) and galvanized sheets and roofing (flat and corrugated) manufactured by the McCullough Iron Company of Wilmington, Del., the former wholly from imported steel sheet bars and the latter from imported sheet bars and domestic zinc or spelter, a drawback will be allowed equal in amount to the duty paid on the imported material used, less the legal deduction of 1 per cent.

The preliminary entry must show the marks and numbers of the shipping packages and the gauge number of the sheets.

The drawback entry must show the quantity of the imported material used in the articles exported, the gauge number of the sheets, whether black sheets and roofing, or galvanized sheets and roofing, and the percentage of domestic coating covering each gauge number of the latter, and, furthermore, in addition to the usual averments, that the merchandise was manufactured of the material and in the manner set forth in the manufacturers' sworn statement, dated June 26, 1903.

The quantity of the articles exported shall be ascertained by the export officers and the weights verified by a United States weigher.

A sworn statement must be filed with the entry showing the amount of imported steel used, together with the number of pounds of the finished article, the quantity of valuable waste, the value of such waste at the factory at the time of manufacture, and the price at the works of the imported material. The sworn statement may be officially verified before liquidation of the entries by a com-

parison of the books and records of the manufacturers, which shall at all reasonable times be open to the inspection of customs officers.

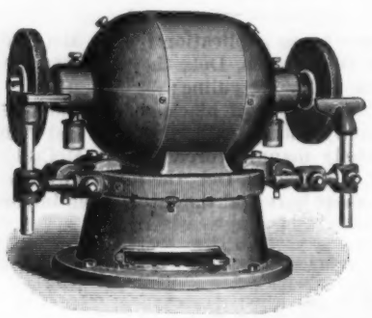
In liquidation, allowance shall be made for nonrecoverable waste of not more than 2 pounds for every 100 pounds of imported material consumed, and for valuable waste in proportion to the value of such waste at the time of manufacture, and the price paid at the works for the imported material.

The following percentages of domestic coatings to the weight of galvanized sheets exported shall be deducted from the respective gauges as scheduled below:

Gauge.	Weight of domestic coating in every 100 pounds of finished article. Per cent.	Gauge.	Weight of domestic coating in every 100 pounds of finished article. Per cent.
Nos. 14 and 16	0.0521	No. 26	0.1066
No. 18	0.0518	No. 27	0.117
No. 20	0.0743	No. 28	0.125
No. 22	0.078	No. 30	0.15
No. 24	0.087		

During the first five months of the current year the German blast furnaces produced 4,042,730 metric tons of pig iron, as compared with 3,318,703 during the corresponding period of 1902.

The Pennsylvania Railroad Company are experimenting with iron telegraph poles. Twelve have been placed at Long Hollow, Pa.



THE GILMORE GRINDER.

The Gilmore Electric Grinder.

The Gilmore Electric Company of South Boston, Mass., are building an electric bench grinder which can be placed wherever connection can be made with a direct current lighting circuit.

The grinder runs cool in continuous service, can be turned at any angle without the use of a wrench, is dust proof, has wick oilers and a simple adjustment for the taking up of end play. One lever starts and stops the motor and gives three speeds. The power required to drive this grinder depends, of course, upon the work to be done. For small drills, knives, &c., a power equal to that for a 32-candle power incandescent is necessary, about 110 watts. For work such as hatchets and similarly heavy tools, from 200 to 400 watts are needed. The construction of the machine will be understood from the sectional drawing.

The Pittsburgh Machinists' Agreement.

After a considerable number of conferences a wage agreement has been reached between the machine builders of the Manufacturers' Association of Pittsburgh and the machinists, by which the danger of a strike has been effectually removed. The original agreement or demands presented by the machinists to their employers was printed in full in *The Iron Age* under date of July 2, on page 41.

A number of the features of this agreement were objectionable to the manufacturers, particularly the demand that only union men should be employed, and the demand for an advance of 15 per cent. in wages and the establishing of a minimum rate of 33 1-3 cents per hour.

Other objectionable features which were eliminated entirely were those prohibiting the operation of any piece work, bonus or premium system and providing that no manufacturer who is a party to the agreement, nor his agent, shall ask or require his employees to work or handle the product of "unfair shops." The original demands made no provision for arbitration, while the agreement adopted covers this point.

A number of conferences were held at which the original demands were discussed, and the manufacturers finally presented a counter proposition that they would give the men a 5 per cent. advance in wages, but would

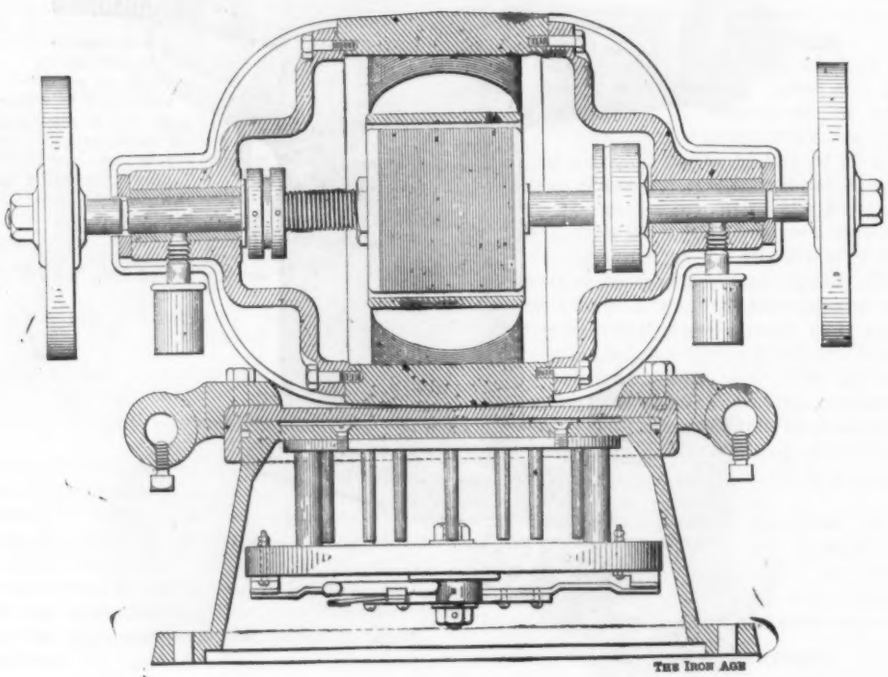


Fig. 2.—Section.

THE GILMORE ELECTRIC GRINDER.

employ men regardless of affiliations with labor unions and also refusing the demand for a minimum rate of 33 1-3 cents per hour. This was referred to the Executive Board of the International Association of Machinists with the result that the men were instructed to accept an increase of 7½ per cent. in wages, if it could be obtained. They were also instructed to cancel the demand that only union men should be employed and also that the minimum rate for machinists should be 33 1-3 cents per hour. A final conference was then held in the rooms of the Manufacturers' Association in the Lewis Block, Pittsburgh, on Thursday, July 10, at which a final settlement was reached. The contract entered into between the machinists and their employers provides that:

Freedom in the employment of labor and the right of organization shall be recognized by both parties hereto.

Hours. Nine hours shall be the standard work day, except where additional time is required to be worked on account of the Saturday half-holiday during the months of June, July, August and September in order to make up the 54 hours per week. Eleven hours shall be the standard night's work.

Overtime. 1.—Day Turn. Time and one-half to be paid for all time worked over the regular day's schedule up to 12 o'clock, midnight. After 12 o'clock, midnight, Sundays and legal holidays—viz., New Year's Day, Decoration Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day—to be paid at the rate of double time. 2.—Night Turn. The standard night's work shall be 11 hours per night for the first five nights of the week—viz., Monday, Tuesday, Wednesday, Thursday and Friday. All time over this shall be paid for at the rate of time and a half. In case of night shift entering holidays, regular time is to be paid. All work done on nights of legal holidays specified shall be paid for at the rate of double time.

Apprentices. In shops where the present number of apprentices does not exceed one for the shop, regardless of the number of machinists employed, and one to every five machinists thereafter, this proportion shall not be exceeded; where the number of apprentices is in excess of such rate, a reduction shall be effected as far as practicable during the life of this agreement, providing the continued employment of apprentices now in service shall not be affected. Where an apprentice wishes to become a general machinist, he shall be given experience in all branches.

Wage Scale. For one year from July 1, 1903, an increase of 7½ per cent. in wages shall be paid all machinists now in the employ of the manufacturers who are parties to this agreement, and the minimum starting rate for machinists shall be 30 cents per hour.

Arbitration. Should any differences arise between the parties hereto in the interpretation of this agreement, or from any other cause, which cannot be adjusted between them, the party aggrieved shall submit their differences, in writing, to the other party, and if they cannot agree within ten days the question shall be submitted to a committee to consist of four members, two selected by each party, and if this committee cannot agree a fifth disinterested party shall be selected by the first four, who shall constitute a Board of Arbitration to adjust said differences, and while said differences are pending before the Board of Arbitration there shall be no lockout or strike, and the decision of the Board of Arbitration shall be final and binding on the parties hereto during the term of this agreement.

This agreement shall remain in force until July 1, 1904, and thereafter, unless either party gives 60 days' notice to the other that they wish to withdraw or change this agreement; and in case of a change the notice shall contain the wording in detail of the proposed change.

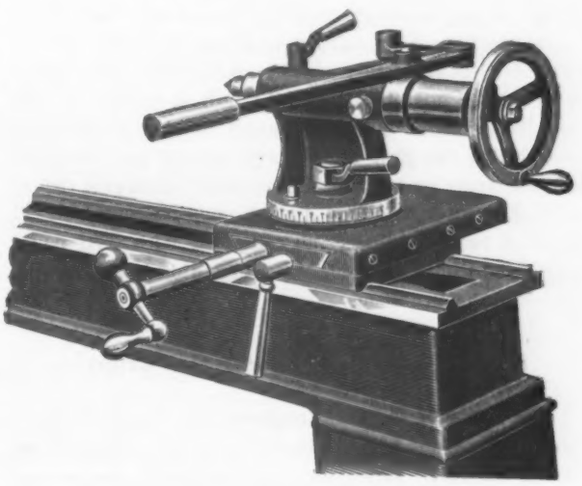
Practically all the large machine shops in the Pittsburgh district will be governed by this agreement, which went into effect July 1. Among them are the following: United Engineering & Foundry Company, Mesta Machine ompany, Seaman, Sleeth Company, A. Garrison Foundry Company. Mackintosh, Hemphill & Co., Hall Steam Pump Company, George A. Hogg Iron & Steel Foundry Company, Taylor, Wilson & Co., Limited, Thomas Carlin's Sons Company, Union Foundry & Machine Company, Best Mfg. Company, Wilson Snyder Mfg. Company, Fox Machine Company, Chaplin-Fulton Mfg. Company, Pittsburgh Valve Foundry & Construction Company, Heyl & Patterson, Pittsburgh Mfg. Company and Pittsburgh Shear Knife & Machine Company, all of Pittsburgh. In all about 44 machine shops will sign the agreement.

The Molders' Situation.

No agreement has been reached as yet between the molders and employers in the Pittsburgh district, but it is the belief that a settlement may be effected before the end of this week. The original demands of the molders included a minimum rate of $3.30 for nine hours' work and an advance of 25 cents a day for all bench and floor molders receiving over $3.20 per day. The minimum rate in the Pittsburgh district is about $3 per day. The employers flatly refused to grant the demands of the men, and at one time a strike was declared by the local molders in Pittsburgh, but this was not sanctioned by the National Association. In view of this it is believed that the men will be ordered to hold another conference with their employers, which will likely take place this week, and at which a settlement of the trouble may be reached.

The Blount Swivel Lathe.

J. G. Blount & Co. of Everett, Mass., are putting on the market an improved set over swivel tail stock lathe. The principal features of the machine are in the tail stock, and consist of the swivel, which is graduated so that any degree of taper may be bored or turned, and the cross slide for use in facing out work. The swivel is fitted with a stop pin to correct the alignment. The slide is long and gives a range of facing practically equal to the swing of the lathe. A socket can be fitted in the tail spindle, to hold the tool for boring or for facing. In the latter process the tool is moved across the face of the work by means of the spindle at the front of the lathe. The feed of the tool in the tail stock may be procured either by the quick



THE BLOUNT SWIVEL LATHE.

acting lever attachment or by the wheel. The lever attachment is easily applied by dropping it over the pins and loosening the screw at the front and back.

The lathe is made in two sizes, 13 and 18 inch swing respectively, and in any length of bed, from 5 to 12 feet. The machine is designed for metal or wood working and is especially useful in pattern shops, for turning or boring brass or wood. Side rests are fitted when desired.

The Victor Metals Company.—The foundation work for the new rolling mill of the Victor Metals Company, East Braintree, Mass., is nearly completed, and work will be rushed ahead as rapidly as possible, as the company are very busy. The mill will be of one story, 50 x 100, and of brick and wood. When finished, the company will make plates and bars of their regular line of noncorrosive silver metal, Victor bronze, manganese bronze and ordnance and composition metals. They will need some general rolling mill equipment. The New York office is at 29 Broadway. E. H. Ewertz is treasurer. In addition to their regular work some Government orders for turrets, conning towers and large propellers, for torpedo boats and monitors, have taxed the capacity of the firm for the last few months. An interesting piece of work that the company have under way at present is 15,000 sets of accurate models of the cup defender and the cup challenger, each 8 inches long, of Victor silver metal, and both mounted on one piece of cherry stained wood. The officers of the company are: Victor C. Lassen, president and general manager; E. H. Ewertz, treasurer; C. G. Sheppard, secretary.

James McMahon, president of the Blast Furnace Workers' Union, is arranging for the national convention of the organization, to be held in Youngstown, Ohio, some time between September 1 and October 1. It is said that some important matters will come up for discussion at the coming meeting.

The Iron Age

New York, Thursday, July 16, 1903.

DAVID WILLIAMS COMPANY, - - - - - - - - PUBLISHERS.
CHARLES KIRCHHOFF, - - - - - - - - - EDITOR.
GEO. W. COPE, - - - - - - - - - - ASSOCIATE EDITOR.
RICHARD R. WILLIAMS, - - - - - - - - - HARDWARE EDITOR.
JOHN S. KING, - - - - - - - - - - BUSINESS MANAGER.

The Iron Age Index.

The index to the reading matter of Volume 71 of *The Iron Age* for January 1 to June 30, 1903, has been compiled and printed, and will be mailed to those subscribers of *The Iron Age* who will make application for it.

In order to relieve those who bind or file *The Iron Age* of the trouble of future applications for the semiannual Index, we have a special list to whom the Index is forwarded without further notice. Subscribers who desire to be entered upon that list will kindly so advise us. We may be permitted on this occasion to refer to the fact that during the first half of the current year we published a larger amount of reading matter than ever before in the history of *The Iron Age*. Volume 71 contains 2217 pages of reading matter, as compared with 3881 pages during the whole of 1902. We believe this to be a record in technical journalism.

Produce Speculation and the Crops.

The course of the grain markets and the condition of the growing crops have continued to be the centers of absorbing interest. Speculation has been wild, the volume of business has been enormous, and in the face of favorable weather, both for harvesting and for the growing crops, prices have advanced sharply, the sentiment in the grain pits being bullish and the fire of speculation fed by all sorts and kinds of ingenious reports, mostly erroneous but containing a dangerous amount of truth. As usual during times of excitement and the feverish clamoring for profit and quick returns, unfavorable developments have been magnified and fears of what the future may develop have been preyed upon, all to assist in elevating prices. Fiction has been much more potent than fact, the unromantic reality being temporarily placed in the background or ignored entirely. Eventually, however, actual conditions will form the solid basis for the average market price of all products. For the time being, though, there is an element of uncertainty in the situation, which is being made the most of by skillful professional operators, who are now at the noon of their harvest, but when the golden fleece has been gathered, the proverbial lambs, exposed to the chilling blasts of fact and reality, will be sadder and wiser for their experience.

For those outside the charmed circles of the grain pits, and who are interested in knowing the truth upon which to base calculations for the future, it might be well to note that the week has evolved nothing unfavorable in general; in fact, the weather conditions have improved, but the shipping demand for grain has continued to fall off and the exports are light.

To understand the position of the wheat markets it should be noted: sentiment is being manufactured by reports of disappointing winter wheat thrashing returns, which have been circulated freely; the generous promise of the spring wheat yield in the Northwest and Canada is being cut down; spot wheat in all the principal markets of the country is commanding a premium over futures and nearby options can demand a better price than far off futures; primary receipts are relatively light; the new crop is moving slowly; the visible supply is the smallest on record at this season, though only a little under last year; the report of army worms in North Dakota and damage by heat in the northern provinces of Russia. These are the colors used to paint a disheartening picture and increase the market value of grain.

On the other hand, the most reliable trade authorities, in conjunction with the Government, have reported the best weather of the season for harvesting and for crop growth, and while disappointing wheat yields have still been announced in the Central States, elsewhere returns have been extremely favorable. Indeed, harvesting in Kansas is said never to have been done under more favorable conditions, cutting has been general, and most of the wheat of that State is now ready to thrash. In Indiana, except in the northern portion of the State, where rains have fallen, the weather has been favorable for cutting, and while the yield of winter wheat in the Ohio Valley will be smaller than was anticipated early in the season, the larger part of the grain will be of excellent milling quality. The small movement of new wheat, it is explained, is due to the lateness of the crop and the fact that farmers are working day and night in the harvest field, and hence little attention is given to shipping at the moment.

The world's visible supply of wheat on July 1 was a little over 103,500,000 bushels, only about 2,000,000 bushels less than a year ago. This, in conjunction with the fact that at the corresponding time a year ago Argentina and India had only about 12,000,000 bushels surplus, whereas this year they have in the neighborhood of 60,000,000 bushels available for export, indicates that the actual world's supply is considerably above that of 1902 at the corresponding period.

As to the spring wheat crop damage, it should be noted that reports which are not inspired by speculative interest are uniformly favorable. Statistics show that during June, 1903, European stocks decreased about 3,000,000 bushels, whereas in June, 1902, the European supplies were cut down 13,000,000 bushels; but the fact which probably has the most sobering influence is that the export demand is about one-half of what it was last year, and in the meantime India, Russia, the Dominion sections and Argentina are selling wheat freely under cover of the high priced umbrella held by the American speculator.

The trade in corn and the news concerning the crop, both fact and fiction, have been scarcely less interesting than the developments in the wheat market. The crop news has been favorable, the weather continuing almost ideal throughout the corn belt, the crop being reported growing rapidly and improving. Unfavorable advices were not lacking, however, and of course were made the most of to advance prices. Hot winds in Kansas, the firing of corn in Southern Illinois and the need of rain in Southern Indiana were reinforced by "tips" that the Government report would show a condition of 74 and an area of 4,000,000 acres less than in 1902; but even upon this basis a crop of fully 2,000,000,000 bushels is indi-

cated, the realization of which fact brought about some reaction in prices.

The Government report for July, which was made public at the close of business on July 10, gives the condition of winter wheat as 78.8, against 82.2 on June 1, and 77 on July 1, 1902; the area planted is estimated at 33,107,000 acres, suggesting a yield of 446,000,000 bushels. The condition of spring wheat is placed at 82.5, compared with 95.9 on June 1, and 92.4 July 1, 1902; the area planted is estimated at 17,257,000 acres, suggesting a yield of 242,000,000 bushels; or a total yield of winter and spring wheat of 688,000,000 bushels, compared with a harvest yield last year of 670,000,000 bushels.

It should be remembered that the Government report covers conditions only up to and including June 25, since which time the improvement of all crops has been remarkable, and commercial estimates which have been made in the light of the improvement made during the last two weeks estimate the crop from 700,000,000 to 750,000,000 bushels.

The condition of corn on July 1, as given by the Government, is 79.4, compared with 87.5 at the corresponding date last year. The area planted is estimated at 89,800,000 acres, suggesting a yield of 2,110,000,000 bushels, compared with a harvest yield last year of 2,524,000,000 bushels. The same remarks in regard to the influence of weather upon wheat apply equally to corn, and commercial estimates have been raised to 2,230,000,000 bushels, the area being estimated at 91,000,000 acres and the condition as 81.7.

The Government estimates the condition of oats on July 1 at 84.3, against 85.5 on June 1, and 92.1 on July 1, last year. The area planted is estimated at 27,732,000 acres, suggesting a yield of 770,000,000 bushels.

The condition of rye is placed at 90.2, compared with 90.6 on June 1, and 91.2 on July 1, 1902. The average condition of barley is placed at 86.8, compared with 91.5 on June 1, and 87.1 on July 1, last year.

The face of the Government estimates would seem to verify the startling reports which have been circulated recently. The ideal weather and other developments during the last two or three weeks, however, place an entirely different aspect on the returns.

Thrashing returns of winter wheat, which have been received by the *Modern Miller* since July 3, indicate small yields in the soft winter wheat sections but a good quality. "The smallest yields are in the southern portions of Ohio, Indiana, Illinois and Missouri, and in Tennessee and Kentucky, the average being about 10 bushels per acre, running as low as 2 and as high as 20 bushels. In the more northern sections of Ohio, Indiana, Illinois and Missouri the yield averages better—about 20 bushels per acre. In Texas the yield is from 17 to 35 bushels, and in Oklahoma 15 to 20 bushels. Hard winter wheat in Kansas and Oklahoma, where harvested, averages high—from 20 to 30 bushels—and the promise in Kansas and Nebraska is for a good crop of fine quality. In southern Illinois, Missouri, Indiana and south of the Ohio River, where the yield is small, farmers are stacking wheat to hold."

Oats and other minor grains seem to have escaped speculative prominence and the oat crop has made unusually favorable progress, a full average, if not better, crop being reported in the West, but for the entire country the prospect is still slightly below an average yield.

The sensational decline in the price of spot cotton, and also of September contracts, which month is now the leading speculative position, has doubtless had its foundation in the brilliant weather which has been reported throughout the cotton belt; but the motive force probably has been furnished by speculative powers whose interests have been running counter to the manipulators of the cotton corner. The paper profits of the Southern cotton pool have been curtailed by several million dollars, if the holdings of the pool speculators approximate anything like the amount popularly believed, the drop in the price of spot cotton indicating a loss of from $825 to $870 per 100 bales in the last two to three weeks. The recent recovery in prices after such an enormous decline was natural, and doubtless to a considerable extent due to covering of shorts. The old crop positions, both at home and abroad, have been most conspicuously weak; the new crop suffering a less heavy decline. Spinners, both foreign and domestic, have shown a surprising ability to remain out of the market, purchases of raw material being made only to cover contracts for yarns and cloths, there being a borrowing power considerably under the level of the spot market. The general sentiment of the market seems to be against the long maintenance of present prices, unless the present crop prospects should be ruined. It should be noted, however, that wet weather has brought about unfavorable conditions in portions of Louisiana and Texas, where the crop is grassy, and in northern Texas, where the boll weevil is said to have caused considerable damage. As a rule, however, throughout the cotton belt the marked improvement previously noted continues, reports being especially favorable from the Carolinas and from Georgia.

Wage Earners as Stockholders.

It is still a question whether the schemes for admitting wage earners to the stockholding privilege in industrial incorporations are as successful as those who devised them hoped they would be. The plan of the United States Steel Corporation is too well known to need comment. In other concerns the results have been such as to warrant reports which are interesting reading, and from which the superficial student of the great problem of identifying the interests of labor and capital might very well get the impression that the solution of every difficulty would be found in making labor a partner with capital in the ownership of plants. This view might be warranted if it should appear that the frugal wage earner, having saved his wages and seeking investment, was buying stocks of industrial companies on exactly the same basis as any one else. But it requires no very large knowledge of human nature to discover that labor is naturally, and not improperly, suspicious of any proposition which offers to place him in a favored classification. He has probably discovered in his experience that it is not usual in business to give something for nothing, nor to sell to one person goods or securities for less than others are willing to pay for them unless something in the way of an adequate equivalent is expected. If he is offered stock in the company employing him at a price below its market quotation, or if he is encouraged to purchase at the market price by the offer of especially easy terms of payment, a higher dividend guarantee than is offered to others or a bonus from the general earnings which is special to himself, he is likely to scratch his head and speculate whether or not the offer is quite what it purports to be, or whether it is the purpose of the philanthropists to "work some juggle to entrap his soul." Whatever he may think as to the nature of his rights, he does not include in this classification participation in the ownership of the plant which employs him. He knows that his individual holding will always remain a microscopic fraction of the capitalization, and that all the holdings of labor combined could not control

the policy of the corporation on any question concerning which labor and the management were in disagreement. If he knew that every share of stock represented an equable proportion of tangible assets, that no dilution had been resorted to with a view to insuring the promoters' profit irrespective of the investors' security, and that the management would always be honest, capable and successful—in a word, if he was in a position to eliminate all risk and to have the assurance that he could recover his investment with legal interest whenever he might wish to do so—he would probably welcome the opportunity to put his surplus earnings into stock purchases. Lacking assurance on any of these points, and suspicious of everything in the way of special inducements to identify him with the stockholding interest, the average wage earner, if thrifty, prefers to find his own investments in the building association, the savings bank and the building lot.

It is equally true that in the board room the proposition to set aside blocks of stock for subscription by labor has generally been regarded with disfavor. It has been done in a few instances, but it is quite true that those who are responsible for the management of great enterprises prefer almost any other kind of stockholders than their wage earners. If things go wrong, if hard times come and profits shrink to the vanishing point, the stockholding wage earner is a very uncomfortable shopmate. If reorganization is necessary he is still more so; and if his holding has to be reduced or wiped out he is powerless to protect himself. These are possibilities which no conscientious employer of labor cares to face. The wage earner is a poor loser. So, for that matter, is any one who has nothing to cushion the shocks of business reverses.

It would be possible, no doubt, to organize a corporation on a financial plan which would admit the wage earner to a part ownership and protect his interest against everything except financial cataclysm. But why should this be done? The dollar of the wage earner is no better than the dollar of the banker or the wealthy investor. It has no greater purchasing power, and should have no greater earning power. The argument that by making him a partner the wage earner is allied by the ties of a common interest with those employing him; that he will be more industrious, more economical of time and materials and more progressive generally, is theoretically unanswerable, but practically it counts for very little. The fact of being a stockholder is likely to make him a bit uncomfortable in the shop. He is hypercritical of the policy of the management, gives more time to watching others not stockholders than to earning the wage upon which he continues dependent, and resents in feeling if not in words the sharp reminder of the foreman that he is neglecting his duty or discharging it badly. He reads the market reports and the stock quotations with more interest than he does the technical literature of his trade, from which he would derive greater benefit. But the chief and insuperable difficulty is that he cannot successfully dissociate himself from fellowship with the labor which has no interest in the ownership of the works, and which is perpetually scheming and planning to advance the interests of labor at the expense of the interests of capital.

What the future may develop is of course a matter of speculation, but the present tendency is not in the direction of such an alliance between employers and employed as would make it in any conspicuous degree mutually advantageous for labor to be more largely identified than it now is in the ownership of industrial plants. The point of view of each must change before such a partnership can be brought about without mutual disadvantage and embarrassment. Altruism will play no part in such a readjustment of relations as will make the wage earner *persona grata* in the stockholders' meeting and give him a chance of representation in the board of directors. He will not be led into investment, like a mouse into a trap, by a tempting bait, and he will expect no advantage over any one else. If he becomes a stockholder, to his own conspicuous benefit, he will do it through his union.

Frank C. Perkins has pointed out that the anthracite and bituminous miners, for example, by a contribution of 20 cents per week to an investment fund, would pile up $2,500,000 per annum, which is a considerable sum. If employed discreetly in the purchase of bonds and stock in the open market, perferably those of the good paying coal properties, the miners' union would soon become a corporation to be reckoned with, and the earnings of its investments might be divided or employed for purposes now demanding the raising of funds by assessment. In a short time the payment of 20 cents per week would probably obviate the necessity for any other charges and leave a surplus for division. Such a policy would tend to make the unions conservative and impress them with the advantage of avoiding any interruption of production, and of maintaining such a relation with the management of the properties in which their funds were invested that both wages and profits would be assured.

Mistaken views will be unavoidable if we lose sight of the fact that there never was a time when the thrifty wage earner could not prosper and become in a large or small way, according to his capacity and business intelligence, a capitalist. Lacking the qualities which make for self advancement, the unthrifty individual wage earner is not likely to be benefited by schemes to make it easy for him to change his condition. The battle of life is usually fought in earning and saving the first thousand dollars. The man who can do this has the world before him, and if health and life are spared may prosper beyond the average. The man who cannot do it will not be materially helped by providing him a ladder with the rounds so near together that he can climb by steps half the length of those which better suit the man who believes in raising himself man fashion.

Very few, even in the iron trade, fully realize what dimensions the imports of foreign material reached during the year 1902 and to date. Of pig iron we imported from January 1, 1902, to June 1, 1903, or in 17 months, nearly 1,000,000 tons, or, more accurately, 997,960 gross tons. During the same time there were also imported 435,027 gross tons of steel billets and blooms and 113,211 tons of steel rails. The movement is now virtually over, and consumption may fall off to the extent of over 1,200,000 tons per annum of pig iron, or its equivalent as representing steel and rails, before the domestic works are any worse off than they were during 1902.

The Astoria Steel Company.—The New York Steel & Wire Company, Astoria, N. Y., have been reorganized under the name of the Astoria Steel Company, and the works, which have been closed down for several months, will soon be in operation again. The new company, it is understood, are to abandon the manufacture of wire rods and confine themselves principally to the production of steel castings, using the present open hearth furnaces, of which there are two of 30 tons capacity each, and adding the other necessary equipment. With this end in view the company have filed plans for extensive alterations and additions to the buildings that will involve an expenditure of over $25,000. J. F. Kernochan, 44 Pine street, New York, is president.

CORRESPONDENCE.

The Ellis-May Vacuum Casting Process.

To the Editor: Though it is a long time since (November 6, 1902) you published A. E. Fay's admirable paper on "Vacuum Casting," the subject is one which will always be of scientific interest, and it is of such practical importance in the working of steel and other metals that I venture to recall the attention of your readers to it once more. The physical principles and mechanical methods concerned in the process were so clearly defined and so exhaustively treated in Mr. Fay's review of the attempts to apply and work out the process that nothing more need be said thereon.

My object just now (if not too late) is mainly personal and practical. It is, first, to confirm and somewhat amplify your record of the stage at which the application was left (by the hand of death), and at which it still stands. This is the passage in your paper: "It (the process of casting in vacuo) has been successfully tested, Mr. May states, for small ingots; but the tests made under the auspices of the 'Ellis-May Vacuum Syndicate' on larger ingots have not been so successful. In justice to him, however, it must be said that he has made a good showing, and that these latter tests, which were carried out in his absence, were not made according to his plans and departed from them in several important respects."

As to these tests, made in August, 1901, it would not be practicable here to describe half the errors and blunders which occurred in making those "experiments" at Sheffield in the unfortunate absence, during disabling sickness, of the scientific and competent designer. But I may send you copy of Mr. Ellis-May's exposure of those failures, which was written by him during his partial recovery, in June and September of 1902. From these Mr. Fay will be confirmed in his well considered settled opinion that if and when the process "can be carried out perfectly and without too great cost, it should finally succeed." From Mr. May's description of that perversion of his plans and the destructive alterations in his appliances, Mr. Fay or any competent engineer will be able to demonstrate the feasibility and efficiency of the vacuum casting process as originally designed and duly set out in the specifications and patents under which it is protected.

My further and more practical object is to make known that, as since Mr. May's decease the Vacuum Steel Syndicate have gone into liquidation, those patents and royalty rights are, or were up to a few weeks ago, available for any enterprising person or firm, who probably could purchase them at some comparatively moderate sum. These patents cover, besides Great Britain, the iron field in the United States, Germany and two or three more countries. But no time should be lost if these preferential rights are to be secured.

W. MARTIN WOOD.

OATLANDS, WEYBRIDGE, June 30, 1903.

J. Wesley Hardwick, president of the Erie Mfg. & Supply Company, died July 13, at Erie, Pa., aged 35 years.

The Production of Pig Iron by Grades.

The annual report of the American Iron and Steel Association contains the following table showing the production of pig iron by grades, the figures having been collected for the first time by Mr. Swank in 1901.

The Bessemer figures for 1901 and 1902 include low phosphorus pig iron. The basic figures are confined strictly to pig iron made with mineral fuel, and do not include the small quantity of basic pig iron that is made with charcoal, practically all of which is used in the manufacture of steel castings. High silicon pig iron is included in the foundry figures.

The following table gives by grades the total production of pig iron in the United States in 1901 and 1902, in gross tons:

Grades—Gross tons.	1901.	1902.
Bessemer and low phosphorus pig iron	9,596,793	10,393,168
Basic pig iron made with mineral fuel	1,448,850	2,038,590
Forge pig iron	639,454	833,093
Foundry pig iron	3,548,718	3,851,276
Malleable Bessemer pig iron	256,532	311,458
White and mottled and miscellaneous grades	87,964	172,085
Spiegeleisen	231,822	168,408
Ferromanganese	59,639	44,573
Direct castings	8,582	8,656
Totals	15,878,354	17,821,307

In 1902 the production of low phosphorus pig iron, which is chiefly used by manufacturers of acid open hearth steel, was for the first time definitely ascertained. It amounted to 164,246 gross tons, and was made by four States—namely, New York, New Jersey, Pennsylvania and Tennessee.

The following table gives the production by States of Bessemer and low phosphorus, basic and forge pig iron in 1901 and 1902. As heretofore stated, the small quantity of pig iron made with charcoal as fuel is not included in the basic figures for either year:

States.—Gross tons.	Bessemer and low phosphorus.		Basic.		Forge.	
	1901.	1902.	1901.	1902.	1901.	1902.
New York	16,239	60,818	4,014	15,766	12,596	45,887
New Jersey	12,253	5,863	30,306	74,970	31,548	32,234
Pennsylvania	4,885,877	5,130,022	1,011,260	1,528,748	314,010	399,962
Maryland	297,149	296,971	.....	.....	1,280	1,939
Virginia	.....	.....	80,945	95,776	34,121	59,402
West Virginia	166,597	182,937	.....	.....	.....	.....
Kentucky	.....	.....	.....	.....	1,987	15,381
Tennessee	.....	9,746	.....	.....	9,638	41,137
North Carolina	.....	.....	.....	.....	.....	71
Alabama	.....	.....	220,499	199,415	131,040	170,784
Ohio	2,637,091	2,927,605	79,477	101,457	91,922	52,418
Illinois	1,394,430	1,495,298	.....	.....	.....	2,649
Michigan	4,365	926	.....	.....	.....	.....
Wisconsin	35,576	70,303	.....	.....	638	.....
Minnesota	.....	11,099	.....	.....	.....	.....
Missouri	.....	.....	22,349	22,458	10,674	11,229
Colorado	147,216	201,580	.....	.....	.....	.....
Totals	9,596,793	10,393,168	1,448,850	2,038,590	639,454	833,093

The following table gives the production by States of foundry, malleable Bessemer and white and mottled grades of pig iron in 1901 and 1902:

States.—Gross tons.	Foundry.		Malleable Bessemer.	
	1901.	1902.	1901.	1902.
Massachusetts	3,386	3,360	.....	.....
Connecticut	8,442	12,086	.....	.....
New York	237,440	272,633	10,705	.....
New Jersey	50,898	59,015	.....	2,748
Pennsylvania	849,610	845,472	61,073	7,693
Maryland	4,757	3,789	.....	.....
Virginia	331,269	348,771	.....	500
West Virginia	.....	68	.....	.....
Kentucky	66,475	93,699	.....	.....
Tennessee	324,057	328,975	.....	.....
North Carolina	.....	544	.....	.....
Georgia	26,433	30,762	.....	.....
Texas	2,273	3,095	.....	.....
Alabama	818,765	1,044,874	.....	.....
Ohio	448,219	403,880	69,480	144,629
Illinois	81,327	67,627	60,614	118,805
Michigan	166,337	154,234	.....	.....
Wisconsin	114,808	152,965	54,660	37,083
Missouri and Washington	14,222	25,427	.....	.....
Totals	3,548,718	3,851,276	256,532	311,458

The International Steam Pump Company.

The pamphlet report of the International Steam Pump Company, which has just been issued, contains the following review of the operations of the company for the year ended March 31, 1903, by George W. Dunn, the president:

The President's Report.

The manufacturing plants of the company have been in operation without interruption during the past year. The orders taken amount to $10,000,000, and the unfilled orders on hand at the end of the fiscal year to over $5,000,000. Notwithstanding the large increase in the output of our factories, the demand for our product has been such that we have not been able to reduce the amount of unfilled orders on hand to any appreciable extent.

During the past year we have made substantial additions in the way of new buildings in the various plants, among the most important of which are the new foundry for the Laidlaw-Dunn-Gordon Company at Cincinnati, the new foundry and machine shop for the Snow Steam Pump Works at Buffalo and the new warehouses for the George F. Blake Mfg. Company at East Cambridge. We have further increased our facilities by installing in all of our plants many new tools of the most improved type. As a result of these improvements the cost of production has been decreased and the output has been increased nearly 40 per cent. over that of the previous year. The new Henry R. Worthington plant at Harrison is now in process of erection and it is expected that these buildings will be completed during the present fiscal year. This plant, when completed, will be the largest and best equipped shop of its kind in the world and will be especially adapted to turn out standard pumps in large quantities, and will enable us to take more of the increased demand for new classes of our machinery.

Profits.

The net profits of the International Steam Pump Company and their constituent companies for the year, after deducting the expenses of the head office, are		$1,839,905.69
From which are to be deducted the preference dividends and other charges payable out of the profits during the year, amounting to		843,113.10
Leaving a balance of		$996,792.59

out of the trading profits of the year applicable to dividends on the outstanding common stock, equal to 8 per cent., to which should be added the surplus of $1,630,070.60 from previous years, making a total accumulated surplus of $2,626,863.19, besides which there is $1,225,816.06 surplus profits upon the books of the constituent companies.

It is a subject for congratulation that arrangements have been consummated to extend our connections and business in Europe by consolidating our European company with other companies and factories which to a certain extent held the foreign market. This consolidation has opened up a very important outlet for our production, and has practically solved for us the difficulties arising from tariff conditions. It was becoming from year to year increasingly difficult to market our product against competition of local manufacturers in consequence of protective tariffs which were enforced on the Continent of Europe. This difficulty will now be overcome by having our own factories in foreign countries where we can produce such machinery as cannot be profitably exported from this country.

The Treasurer's Report.

Max Nathan, treasurer, submits a report from which we take the following:

1. *Capital Liabilities.*—In order to provide funds to pay for improvements already made, and to meet the cost of the extensive improvements completed and under way, arrangements were made on or about January 1 to issue $2,500,000 of 6 per cent. debentures, which were subscribed for, and by March 31 there had been received in respect thereof $1,892,666.67. The Henry R. Worthington Company purchased during the year all the outstanding shares, representing over one-eighth of the entire capital stock, of the Worthington Pumping Engine Company, and thus acquired complete ownership in that company, including their British and other foreign connections. Other changes in the capital account arise from the fact that the associated companies have sold the bonds of the Holly Company, previously held in the treasury.

The International Steam Pump Company continue to hold the ordinary stock of the Blake & Knowles Steam Pump Company, Limited, of England. The outstanding debentures of the English company have been further reduced during the year to £188, 300, or $913,255. The annual drawing made since the close of the fiscal year will further reduce the amount outstanding by $74,205.

2. *Fixed Assets and Investments.*—The following is a summary of the net additions made during the period under review:

Purchases of real estate and net additions and improvements to buildings, machinery and fixtures, &c., including the expenditure for the year on account of small tools, patterns and drawings, and for modernizing and replacement of machine tools, &c		$1,190,843.69
From which deduct on account of depreciation		258,517.70
		$932,325.99
Special expenditure on account of patents		7,162.75
Cost of acquisition of balance of interests in the European Worthington companies		16,003.20
Appreciation of investment in the common stock of the Blake & Knowles Steam Pump Works, Limited, due to the operation of the sinking fund and redemption of debentures		70,325.00
Miscellaneous items		11,721.94
Differences arising from transactions in stocks and bonds of the associated companies during the year, due to their treatment in the consolidated accounts, at par value		9,625.97
Total addition to fixed assets		$1,047,164.85

3. *Current Assets and Liabilities.*—Under this head are included:

Inventories of finished work and work in progress		$2,625,533.79
Materials, supplies, &c		1,580,600.23
Accounts and bills receivable, &c		3,132,788.62
Cash in banks and on hand (general account)		106,230.90
		$7,445,153.54
Less current liabilities		963,631.41
		$6,481,522.13
Balance in the Colonial Trust Company (special account), part of the proceeds of the debentures		489,237.81
Total		$6,970,759.94

The corresponding amount at March 31, 1902, was $5,762,850.48, showing an increase during the year of $1,207,909.46, including the balance of the proceeds of debentures still in hand. These figures are, however, exclusive of the amount standing to the credit of the company owing by the Worthington Pumping Engine Company, London branch. The inventories have been valued under your direction, as nearly as can be estimated, at cost price, and, as previously, no profit has been added for work in progress.

4. *Surplus.*—The balance of undivided profits, as shown in the third annual report, was		$2,227,904.94
From which deduct adjustments on account of sundry charges arising in connection with matters applicable to periods prior to April 1, 1902 (and consisting chiefly of Paris Exposition account)		107,196.34
Deduct also common stock dividends payable out of this surplus:		
International Steam Pump Company	$490,500.00	
Henry R. Worthington	138.00	
		490,638.00
Balance of previous year's surplus		$1,630,070.60
Add:		
Net profits from the combined operations of the companies during the year as per statement		$1,839,905.69

From which must be deducted the following:		
Interest on Holly bonds.	$35,000.00	
Interest on International debentures	22,889.98	
Discount on bonds and debentures	9,498.12	
Interest on Blake & Knowles debentures, dividend on preference shares and London expenses	104,725.00	
Dividend on Henry R. Worthington preferred stock	140,000.00	
Dividend on International preferred stock	531,000.00	
		843,113.10
Net addition to surplus		996,792.59
Total of undivided net profits March 31, 1903.		$2,626,863.19

The difference between this amount and the sum to the credit of surplus account in the accounts subjoined ($3,852,679.25) is mainly accounted for by the accumulations of the undivided profits of the various associated companies which had accrued prior to their association with the International Steam Pump Company, and which are not therefore entitled to be considered as available as undivided profits of this company.

Pig Iron Producing Capacity

Through an error in the method of computation the statement of the capacity of the blast furnaces on July 1 was excessive. Instead of figuring on the basis of 30 days, the returns were, in many instances, computed on the basis of four weeks to the month, a practice very prevalent with furnace managers. We print below the corrected figures, which show that we entered July with substantially unchanged capacity:

Coke and Anthracite Furnaces in Blast.

	July 1.		June 1.	
Location of furnaces.	Number of stacks.	Number in blast.	Capacity per week.	Number in blast.	Capacity per week.
New York	17	10	11,278	10	10,181
New Jersey	7	5	4,294	5	4,221
Spiegel	3	1	150	3	500
Pennsylvania					
Lehigh Valley	27	24	14,119	25	15,115
Spiegel	1	1	116	1	106
Schuylkill Valley	13	11	10,862	12	10,283
Lower Susquehanna	10	8	8,333	8	8,103
Lebanon Valley	12	7	5,878	7	6,300
Pittsburgh District	36	35	95,399	35	90,864
Spiegel	3	2	1,850	3	2,400
Shenango Valley	19	17	27,707	17	28,554
Western Penn	18	17	22,106	17	20,778
Maryland	5	4	6,989	4	7,351
Wheeling District	12	10	19,957	9	18,550
Ohio:					
Mahoning Valley	15	13	26,388	12	24,700
Cent. and Northern	16	14	27,789	15	30,448
Hocking Valley	3	2	1,000	2	900
Hanging Rock	12	9	5,888	11	7,683
Illinois	19	16	32,124	17	33,360
Spiegel	1	1	934	1	940
Minnesota	1	1	1,318	1	919
Wisconsin	5	5	4,987	5	5,080
Missouri	1	1	841	1	851
Colorado	4	4	5,370	5	5,880
Spiegel	1	1	350	0	0
The South:					
Virginia	23	17	10,124	18	11,734
Kentucky	8	4	1,735	4	1,543
Alabama	41	28	26,826	29	27,226
Tennessee	16	15	8,171	16	9,425
Georgia	1	1	542	1	730
North Carolina	1	1	400	0	0
Totals	354	294	384,825	294	387,725

A few belated returns of production have slightly modified our report of the production of coke and anthracite pig iron for June. The corrected total is 1,673,465 gross tons, as compared with 1,673,228 previously reported. The only furnaces which do not report are Leesport in the Schuylkill Valley, Ainey in the Lehigh Valley and Sarah in the Hanging Rock region, whose aggregate output we estimate at 6200 gross tons.

Product of Steel Companies.

It is interesting to segregate from the total product that of the steel companies. Our reports include all the furnaces of the United States Steel Corporation, Jones & Laughlin, Clairton, Bethlehem, Lackawanna, Cambria, Pennsylvania, Maryland, Colorado, Wheeling and the Northern furnaces of the Republic Company. These together made in April 963,097 gross tons, in May 1,033,515 gross tons and in June 1,019,313 gross tons.

OBITUARY.

AUGUSTUS E. W. PAINTER.

Augustus E. W. Painter, formerly a very prominent iron manufacturer and financier of Pittsburgh, died July 7 at his residence in Allegheny, Pa., after an illness of eight weeks of diabetes. Mr. Painter was in his sixtieth year and was a son of the late Jacob Painter, junior member of the firm of Zug & Painter, pioneer iron manufacturers of Pittsburgh. He was born in Allegheny, June 29, 1844, and received a preliminary education in the academies of Pittsburgh and Allegheny. After the death of Jacob Painter, Augustus became the head of the firm, which was later reorganized as the J. Painter & Sons Company. He was educated at the Renssalaer Polytechnic Institute at Troy, and his engineering training especially fitted him for the iron business. He made such a success of the operation of the mills that he and the members of his family amassed a fortune before the company was absorbed by the American Steel Hoop Company. On the death of John W. Chalfant Mr. Painter was made president of the People's National Bank, and he devoted the remainder of his life to building and strengthening that group of financial institutions known as the "iron men's banks," the People's National and the Safe Deposit & Trust Company. In addition he was a director of the Pittsburgh & Lake Erie Railroad Company and the Mackintosh-Hemphill Company.

CHARLES C. MARTIN.

Charles C. Martin, consulting engineer of the Department of Bridges of New York City and a man of high reputation in the engineering world, was found dead in bed on Saturday morning, July 11, at the summer home of his son, Kingsley L. Martin, at Far Rockaway, L. I., his death being due apparently to apoplexy. Charles C. Martin was born in Springfield, Bradford County, Pa., on August 30, 1831. He took a course of study at the Rensselaer Polytechnic Institute, at Troy, N. Y., where he was graduated as a civil engineer in 1856. He spent a year in the institute as an instructor and then went to Brooklyn, where he secured a position as rodman in the engineering department of the city water works. He rose in a short time to the position of assistant engineer, and in a few years was appointed general superintendent and chief consulting engineer of the Trenton Locomotive Mfg. Company of Trenton, N. J. Mr. Martin was engaged in the building of a large railroad bridge over the Savannah River when the Civil War broke out and he returned to Brooklyn. During the war he did special work as an engineer in the Brooklyn Navy Yard. He took a position as chief engineer in the employ of the late James S. T. Stranahan, and supervised the construction of the Atlantic Docks. Later he became chief engineer for the contracting firm of Kingsley & Keeney and superintended the laying of the 48-inch water main from East New York along Atlantic avenue. He afterward became identified as chief engineer with the laying out of Prospect Park, Brooklyn, holding this position until January, 1870, when John A. Roebling was selected to build the Brooklyn Bridge. Mr. Roebling appointed his son, Col. Washington A. Roebling, as his first assistant, and Mr. Martin as his second assistant. From that time until the big bridge was thrown open to the public in May, 1883, Mr. Martin labored as assistant engineer. Then Colonel Roebling retired, and Mr. Martin was made chief engineer and superintendent of the bridge. Under one title or another Mr. Martin held the position of engineer in charge of the maintenance of the bridge up to the time of his death.

NOTES.

WILLIAM G. HOWELL, who died June 8 at La Grangeville, N. Y., in his seventy-first year, was for many years identified with the iron business in the East. Mr. Howell was born of Welsh parents in France in 1833. When he

was but a few weeks old his parents returned to Wales. He served in different iron mills in Wales until 1860, when he went to Spain to start a mill at Garucha. From Spain he returned to Wales about 1865. While in Wales Mr. Howell was one of the first, if not the first, to put to practical use a three-high roll train. In 1867 he came to this country and assumed charge of the rolling mills of the Burden Iron Company of Troy, N. Y., and in later years built mills at Londonderry, Nova Scotia, Chester, Philadelphia, Conshohocken, Pa. In April, 1899, while managing the mills of Peck, Benny & Co. of Montreal, he was stricken with paralysis, but in the following year recovered and was induced to return to Montreal, but in February, 1902, failing health compelled him to resign his position and retire.

The Swedish Lancashire Iron.

BY BIRGER F. BURMAN, SPARROW'S POINT, MD.

Every one in any way connected with iron, whether as a maker or as a merchant, knows very well from where he can obtain the best kind of that metal. Sweden is famous for her first-class iron, and it is the same Swedish "Lancashire" wrought iron which the blacksmith in Syria as well as the merchant of America asks for when he wants "the best kind of iron." It is not my intention to describe in detail the work as it is carried on in Sweden. I shall deal only with:

1. The raw material used.
2. How a relatively large output, together with least possible reduction in weight of pig iron used, is obtained.
3. Bad iron, and how first-class product is made.
4. Why Swedish "Lancashire" often is called "The best iron in the world."
5. The possibilities of other countries rich in charcoal making as good a "Lancashire" iron as the Swedish.

I.—Raw Material Used.

When converting pig iron into wrought iron by this method the following facts must be taken into consideration:

a. The pig iron is smelted in contact with the fuel.

b. The process is both oxidizing, to eliminate the different elements of the pig iron, and is also reducing so far as it bears on the recovery of the iron from the slag.

c. The slag produced is continually used as an oxidizing agent heat after heat.

In the manufacture of Lancashire iron the presence of sulphur and phosphorus must be avoided as far as possible. Coke, therefore, cannot be used, as its high sulphur would be taken up by the iron. If an effort be made to keep it in the slag by making the latter highly calcareous the heat necessary for the production of such a slag would be inadequate and extremely bad iron would be produced in another way than through the presence of sulphur. The two elements named are not, however, so dangerous in the Lancashire as in Bessemer or open hearth processes. The slag is very rich in ferrous oxide, and because this base is a good carrier of sulphide of iron a considerable amount of the sulphur in the pig is brought over into the slag. The slag when continually used, would, however, very soon become saturated with phosphorus and sulphur, and thus be unable to take up more. All of the sulphur and phosphorus present in the hearth would then have to be taken up by the iron in the smelting. For these reasons it is best not to have them in the hearth at all. An amount of 0.03 per cent. sulphur and 0.08 per cent. phosphorus in the pig iron is not dangerous.

Of other elements, only carbon, silicon and manganese are of importance. Others, such as copper, &c., do not appear in the Swedish Lancashire pig iron—at least not in any amount to speak of. They are neglected here. As a pig iron of this kind must melt quickly, refine easily and give a comparatively tough and acid slag, great care must be taken with the three elements named. Carbon as graphite makes the pig melt very slowly, and as graphite indicates a greater amount of silicon in the pig it is best to have it present—at least partly—as combined carbon. High silicon would not only delay refining but would also produce too acid a slag. A greater amount of manganese present would cause a very bad iron because of the thin, grainy, excessively basic slag it makes.

One single grade of pig iron cannot be used. Such a pig iron, anyhow, would after some time of running cause a slag unsuitable for obtaining good wrought iron; this not only because the slag is used over and over again, but also because the pigs never are perfectly clean from sand. Add to this variations in the temperature of the blast, variations in the character of the charcoal, &c., and there is no wonder that it is impossible to have a standard analysis for pig iron for this method. As the quality of the iron entirely depends on the slag, there is no better way than to use one's eyes in selecting the right grades of pig iron and the right proportions of same. One week there is need of more siliceous or grayer pig iron, during another week perhaps more white iron can be used. I have found a mixture of half white and half gray pig iron of following analysis very good:

	White. Per cent.	Gray. Per cent.
Carbon as graphite	0.400	3.500
Carbon combined	Not analyzed	
Silicon	0.230	0.400
Manganese	0.150	0.200
Sulphur	0.007	0.006
Phosphorus	0.065	0.060

This mixture had to be changed to one-third white and two-thirds gray—often even more gray—in order to get a good product.

Charcoal made of fir tree is generally used. Sometimes an addition of leaf-tree charcoal is made, but that is exceptional. In all cases the fuel is washed in water in order to get rid of sand, &c.

II.—Maximum Output with Minimum Waste.

The difference between the weight of pig iron charged and the weight of the iron made is the loss due to oxidation of the different elements in the pig iron. This loss may be greater or less, because a certain amount of iron is always bound to go over into the slag. But as such oxidation of iron is equivalent to an economic loss every effort is made to avoid it, or, as the puddlers call it, to "take back" iron again from the slag. From a waste of about 15 to 20 per cent. 20 years ago many works have now come down to an average of 11 per cent. and even lower, occasionally as low as between 8 and 9 per cent.

In running a Lancashire hearth two ways may be chosen from: Either a quick cold running, or a slower hot running heat. When using white pig iron in connection with relatively cold blast and bad fuel the pigs "melt like butter," and as the temperature in the hearth is low and the coals are bad, oxidation of both silicon, manganese and iron is easily done. The slag becomes very rich in iron, highly oxidized, and even though the temperature be low carbon is taken away rapidly. As a result the melting is done in a short time, but much of the iron has been carried into the slag. The output per week may be large, but the loss is too great and the product often bad. Hence this kind of running is not so economical as the slower, hot running. When using a higher silicon pig iron a relatively hot blast, a deep and wide hearth, with tuyeres directed more toward the bottom of the hearth, and good coal, the melting will take a longer time, but the output of iron will be the largest possible and the loss in weight of pig iron comparatively small.

High temperature hampers the oxidation of silicon. Probably the removal of that element in this case takes place after carbon has been taken away—at least to a great extent. High temperature is again desirable for the oxidation of the carbon. But as little of either iron or silicon is oxidized at the beginning there is too little highly oxidized iron in the slag to surrender oxygen to the carbon in the pig. The refining will therefore proceed very slowly. It is a question whether at the same time the great heat in the hearth is able to reduce iron from the slag by the white hot coal. The yield of iron is high and the slag scarcely suffices. I know for a fact that if a great heap of slag were ready to be used when starting the furnaces for hot working, after some time a large portion of such heap would be taken away. Where

had the slag gone? As the quantity of received iron at the same time was larger than ever, it seems possible that a reduction of iron by carbon, similar to that in a blast furnace at certain occasions, had taken place. The following figures from a Swedish iron works are considered good: 950 pounds of charcoal used for producing 2240 pounds iron, and 10.50 per cent. waste of pig iron used.

III.—Bad Iron and How First-Class Product is Made.

Nowadays there is little fear of red short and cold short iron, because the blast furnace is keenly watched and phosphorus and sulphur are never allowed to enter the pig iron, but Lancashire iron is troubled with another kind of evil scarcely less feared than those mentioned. I mean "raw shortness." It causes the same appearance as red shortness, but is not caused by sulphur; it is a certain kind of slag present in the iron as sand grains, which, when the iron is worked, especially at a certain temperature, diminishes the strength of the iron, causing cracks wherever the slag corns are gathered. Lancashire iron always contains more or less slag, but the amount is not responsible for the raw shortness. It depends upon the quality of the slag with which the iron is made, whether or not it can stand the test. A slag is good when it has its melting temperature, or rather sintering temperature, as near as possible to that of iron; also, when it is tough. Such a slag, which belongs to the more acid type, is able to follow the consistency of the iron up and down, and remains in the iron in the form of coherent particles. When the iron is being worked a tough slag does not cause cracks in the iron as the dry unsintered slag is likely to do. It will either leave the iron smoothly or remain in it, in no case interfering with the cohesion of the iron particles. The bad slag is usually too basic in character; it has a high melting temperature and is very short—just like sand. It is of white color in the hearth, and when the iron bloom is hammered leaves it as flying sand grains. It is rich in iron. The good Lancashire slag I have found to be of light red in color in the hearth. When putting an iron rod into the slag bath it is covered with a long, thin, coherent sheet of slag. While working the iron bloom under the hammer the inclosed slag leaves it gently in similar thin sheets, which first cover the iron bloom itself, but after a few moments fall down on the anvil or beside it. No rain of sand grains occurs. In order to get out as much slag as possible it is of great importance to operate the hammer immediately after the iron bloom has been placed on the anvil.

But even though an experienced eye is pretty well able to judge the character of the iron when on the anvil, a test must be made once or twice a week. In Sweden this test is usually made in the following way: A little bar of about ⅝ x ⅝ inch, or 1 x ⅝ inch, is made up, either as hammered or as rolled iron. In the blacksmith's forge this is now heated with caution until sparks from the iron indicate that the exterior parts of the rod begin to burn. It is then taken out and allowed to cool slowly until it is light red. Usually the testing is done by punching conical holes in the bar. If the iron is good those parts of the rod between the holes and edges of the bar fail to show cracks. If bad, the many cracks demand an instant change in the pig iron. A very simple way, if the iron is getting bad, is to use proportionately more of gray pig iron, which is equivalent to increasing the amount of silica in the slag. A more siliceous slag, tough and coherent, will be obtained and consequently a better iron result. Of course, the slag might already be too siliceous, but that is too exceptional a case; then of course another kind of pig iron has to be used, and the temperature in the hearth to be lowered.

IV.—Why Swedish "Lancashire" Often is Called "The Best Iron in the World."

When putting down figures concerning this Lancashire wrought iron a true opinion is difficult to get, because the analyses of the hearth slag differ so much and are, in fact, almost impossible to get right. Therefore, the analyses below may serve as indicators only, giving an idea about the iron and its slags:

	Pig iron. Per cent.	Wrought iron. Per cent.
Silicon	0.280	0.001
Manganese	0.150	0.010
Phosphorus	0.064	0.041
Sulphur	0.012	0.005
Carbon	...	0.040

Surely this iron (analyzed a few years ago) was pure. It was always considered very good, although the testing machine did not show very high figures. A sample of the hearth slag taken at the end of a cold heat showed the following analysis:

	Per cent.
Silica	8.16
Ferric oxide	14.52
Ferrous oxide	71.82
Manganous oxide	2.82

A remarkable feature of Lancashire iron is its iow carbon contents and its great malleability. But that is not sufficient to make it the "best iron in the world." Any kind of iron may get that name if it is good for some special purpose. And, in fact, Swedish Lancashire would be useless in many cases where other kinds of iron or steel give good service. Even the physical tests are often in all respects much better with good Swedish open hearth steel than with the Lancashire wrought iron. In spite of this, however, and against all prophecies that the Swedish open hearth itself soon would kill the Swedish Lancashire industry, it still lives and furnishes the world with its products. There is a property of the Swedish Lancashire which has made it a favorite with every blacksmith in the world. While he must be very careful in using steel, because it is easily burnt, and therefore he must have experience and a trained eye for different temperature, he has no trouble with this iron. It can be used by the most unskilled person, provided it is good Lancashire; it can be heated and worked at almost any temperature; it can be twisted and hammered cold and hot, &c.

V.—The Possibilities of Other Countries, Rich in Charcoal, Making as Good a "Lancashire" as the Swedish.

It is always explained that "Sweden has good ores, hence she makes good iron." That is true so far as acid Bessemer or open hearth is concerned, but I doubt if the same can be applied to Lancashire iron. As shown above, sulphur and phosphorus, if present in the pig iron even to a considerable amount, do not interfere with the strength of the iron, hence the ores used for that pig iron may contain comparatively much of these elements. The presence of silicon and carbon in the pig depends entirely on the blast furnace; therefore only manganese, copper, &c., are to be feared if the ores contain those elements to any considerable amount. When one knows the analysis of the pig iron to be used it is easy to make up a burden for the blast furnace in order to get that iron—this if the ores are comparatively pure or suitable for the purpose. As it is also known that charcoal must be used, it will not do to have basic slag; the temperature would be too low for such a slag and consequently most of the sulphur must be removed by roasting the ore. In the furnace care must be exercised in the best reduction of iron, and this, too, by carbon monoxide and not by carbon. It will not do to use even charcoal made of hard wood; the temperature in the furnace would then be raised and consequently too much silicon be transmitted into the pig. Neither is too hot blast advisable. In short, the blast furnace has to be run comparatively cool, with the burden descending slowly. The following is an average analysis of blast furnace slags, samples taken continually during ten days' running:

	Per cent.
Silica	45.10
Alumina	5.83
Lime	35.96
Magnesia	10.76
Manganous oxide	0.47
Ferrous oxide	1.77
Loss	0.11
Total	100.00

The pig iron was the same as first mentioned above, white and gray alternately.

Conclusions.

A good Lancashire wrought iron may be obtained under the following conditions:

1. If suitable ores can be obtained (much of the sulphur can be eliminated by calcining the ores and a certain quantity both of sulphur and phosphorus can be taken away in the Lancashire hearth).

2. If the blast furnace is managed skillfully in accordance with the rules given above.

3. If the work in the blast furnace as well as in the Lancashire hearth is not carried on in a hurry.

Finally, in making Lancashire it is the best policy to follow the golden rule, *Eile mit Weile.*

MANUFACTURING.

Iron and Steel.

The Laughlin Nail Company, Wheeling, W. Va., have closed down their cut nail factory and also their sheet mill plant for about two weeks for the purpose of taking semiannual inventory. Both plants are expected to resume operations on or before July 20.

The Carnegie Steel Company will erect five additional open hearth furnaces of 50 tons capacity each at the South Sharon works, South Sharon, Pa., which will give this plant a complement of 17 50-ton furnaces. The two new blast furnaces under erection at South Sharon are getting along toward completion, and it is the expectation to have them in operation some time this fall.

The York Rolling Mill, York, Pa., which closed the latter part of June, resumed operation on Monday, July 13, the men working day and night. Repairs have been made and new machinery added.

The old Jefferson Steel Works, in Birmingham, Ala., recently taken over by the Union Iron & Steel Company, 71 Broadway, New York, are being repaired preparatory to going into commission at an early date. Besides Union Furnace, at Ironton, Ohio, the company are operating the Big Stone Gap iron property and furnaces, Big Stone Gap, Va.; Chatham Furnace, Chatham, N. Y., and Union Rolling Mill & Foundry, at Denver, Col.

Application has been made for a receiver for the Ohio Steel & Iron Specialty Company, Cuyahoga Falls, Ohio. The petitioners are B. Emmeron, Cleveland; Emmeron Bros., Akron; Wilkoff Bros., Youngstown. The first named has filed a claim of $695.78, the second $556.95 and the last $38,000.

The Tennessee Coal, Iron & Railroad Company are increasing the capacity of their steel plant at Ensley, Ala.

The Juniata Steel & Iron Company, Greencastle, Ind., have reorganized the Board of Directors by filling the places of the three directors resigned with the election of R. L. O'Hair, president of the Central National Bank, Greencastle; S. J. Mack of the Penn-American Glass Company, Anderson, and Lewis E. Lathrop, Indianapolis. R. L. O'Hair has been elected president, superseding S. M. Strong, who has been appointed general manager. Some of the stockholders were exercised over rumors of the merging of this company with others and set about an investigation.

The Andrews & Hitchcock Iron Company, at Youngstown, Ohio, have blown out both of their Hubbard furnaces, at Hubbard, Ohio, for extensive repairs. As soon as these are finished the furnaces will go in blast again.

The entire plant of the American Steel & Wire Company at Anderson has shut down for a month, during which $200,000 in improvements will be made.

The American Tin Plate Company's plant at Elwood, Ind., will not take the usual summer vacation. It is said there are orders ahead to keep the works going for two years. Although the employees are working under excessive heat and would like to avoid the necessity of it, they are not disposed to insist on a vacation as they did last year, when they asked for a three weeks' lay off and got three months'. It has been difficult during the recent hot weather, however, to get a sufficient number of workmen to man the mills.

The report that ten of the hot mills in the tin plate plant of the Carnegie Steel Company, at South Sharon, Pa., would be closed during August and the crews doubled up on the other ten is incorrect. The entire 20 mills in this plant will be operated right along unless hot weather should interfere.

General Machinery.

The Advance Pump & Compressor Company, Battle Creek, Mich., advise us that they are in the market for wood working machinery for their pattern shop.

The Ottumwa Iron Works, which have been doing business at Ottumwa, Iowa, since 1867, have been reorganized and incorporated as a stock company. J. T. Hackworth, A. G. Harrow and Allen Johnston, under whose direction the business was formerly conducted, have retired from the active management, although still financially interested, and the following new officers have been elected: Alfred Briggs, president; W. T. Harper, Jr., vice-president, and H. P. Keyhoe, secretary and treasurer. The Board of Directors of the new company are A. G. Harrow, Alfred Briggs, H. P. Keyhoe, John Wishart, L. Hambleton, W. T. Harper and Joseph Dain. The reorganized company took charge of the business July 1, continuing without interruption the working of the plant in the manufacture of hoisting engines and mining machinery, together with pumps, pipe and fittings and general supplies. It is the intention to enlarge and modernize the present plant.

The Waltham Machine Works, Ellis & Sanderson, proprietors, Waltham, Mass., have plans prepared for an addition to their plant, but no contracts will be let until the carpenters' strike is settled.

The William Odemiller Machine Shop of York, Pa., will shortly be annexed to the works of the Tubular Axle Company of Emigsville, Pa. This plant will be considerably enlarged. Mr. Odemiller is now one of the proprietors of the Tubular Axle Works.

The Philadelphia & Reading Railway locomotive shops, at Reading, Pa., with 2000 employees, are working only five days a week. This is the first retrenchment order in five years. Excellent condition of motive power and a large contract for new engines with the Baldwin Company is the cause given.

Gay & Ward of Athol, Mass., manufacturers of milling, gear and other cutters, are to erect a new forge shop, 40 x 80 feet, one story high. Work on the new building will begin immediately in the hope of having it ready for occupancy this season. Two steam hammers will be installed as a beginning, with the intention of enlarging this part of the equipment later on. Other minor improvements to the works are also being made.

Richard T. Greene, shipwright, of Chelsea, Mass., is to establish a machine shop at his yards. Tools will be installed in the present building. Mr. Greene's idea is to start his machine shop on a small scale and increase its equipment as his business demands it. At present his machine work is done outside.

The Dunkhorst Bros. & Hartman Company, Syracuse, N. Y., expect to have their new forge shop in operation by August 1. All equipment has been purchased.

The Roderick Lean Mfg. Company, Mansfield, Ohio, manufacturers of agricultural implements, advise us that they are in the market for wood working machinery, drill presses, shafting, pulleys, &c., and a 50 horse-power gas engine for their new plant. The punches, shears and some of the presses have been arranged for. The building will be 60 x 212 feet, two stories high.

The recently incorporated Stone-Working Machine Company, 41-43 Wall street, New York, will put on the market some new stone working machinery which they will have manufactured by contract. Later a plant may be erected. W. F. Ranney is general manager.

The Holson Motor Patents Company, Limited, Grand Rapids, Mich., recently incorporated, will acquire a small plant for manufacturing Gyroscope motors for demonstration purposes only, their intention being to license other companies to build the machines. M. B. Church is chairman and general manager and M. Clay Church secretary.

Power Plant Equipment.

The Los Angeles Railroad Company, Los Angeles, Cal., are purchasing equipment for a large substation, to be located in the center of the city. The station will be built in the center of what is known as the Plaza, along side of which practically all the car lines at Los Angeles pass. The company have purchased water power transmitted in the form of three-phase alternating current to the city and the substation under construction will secure its power from this source. The station will be fed by two 15,000-volt, three-phase, transmission lines coming from the power supply, and will be equipped with six 6000-kw. induction motor generator sets, with lowering transformers, to be supplied by the Westinghouse Electric & Mfg. Company, and 2000-ampere one-hour rating storage battery, which will be furnished by the Electric Storage Battery Company of Philadelphia. The motor generators will be equipped to carry a temporary overload of 2000 amperes each, and the battery will carry 4000 amperes for a short time. The station, it will be noted, is thus to have a capacity of 16,000 amperes at 550 and 600 volts. The capacity of the station is intended to meet the demands of the company, including such cars of other companies which enter the city over their tracks for the next three years. R. S. Masson, consulting electrical engineer, 706 Lankershim Building, Los Angeles, and 232 Crocker Building, San Francisco, is in charge of the work.

The new plant of the Pilling-Kruse Air Engine Works, Bucyrus, Ohio, is 75 x 160 feet, two stories. The machinery is installed and the company are prepared to build compressed air hoisting engines, both stationary and portable, and to design any appliance upon which a compressed air engine can be used.

J. F. Hogan & Co., Marion, Ind., have incorporated, to manufacture portable and stationary boilers and everything in the

sheet metal line. The capital stock of the new company is $10,000. J. R. Bennett has been elected president, J. F. Hogan manager and W. J. Dean secretary and treasurer, who, with H. M. Gilchrist and L. T. Hixon, constitute the stockholders. The company's shops are equipped with a complete line of pneumatic tools.

The Electric Light Commissioners of Logansport, Ind., will receive bids until August 31 for two steam boilers, with a capacity of 350 horse-power each.

A 100 horse-power Corliss engine, 125 horse-power boiler, generators, &c., are required by the Abbeville Electric Light Company, composed of J. L. Bankston and J. M. Warren of Abbeville, Ga. The company are to install an electric light and power plant which they hope to have ready for operation by December.

The Cleveland Foundry Company, Cleveland, Ohio, have recently added to their equipment a Westinghouse 100-kw., 250-volt, engine type generator, and 14 direct current motors, ranging in capacity from 5 to 30 horse-power, together with the necessary switchboard and auxiliary apparatus. The Corlett Engineering Company are the engineers. The Cleveland Worsted Mills are also installing two additional Westinghouse 3-phase alternators, one of 400-kw. and the other of 100-kw. capacity; also several Westinghouse type C induction motors, aggregating about 600 horse-power, which will be used to drive the line shafting in the mills.

Foundries.

The S. Obermayer Company of Cincinnati and Chicago, manufacturers of foundry facings and equipments, have secured the contract for the entire foundry equipment of the new technical school of the University of Chicago; also the contract for the entire foundry equipment of the Crane School of the city of Chicago. In these contracts are included complete outfits for both brass and iron foundries, and these two technical departments will have the most complete and modern brass and iron foundries of any technical institution in the country. Contracts are to be completed for the opening of the school term, September 1.

The Emmert Mfg. Company of Waynesboro, Pa., will build a foundry in connection with their present plant. The rapid growth of business and numerous delays met in obtaining castings from other foundries have necessitated this move. The contracts for the building have not been let.

The Davis Car Wheel Company have been organized at Moundsville, W. Va., with a capital of $100,000. The incorporators are: C. L. Sanford, Bellaire; A. J. List, J. M. Birch, M. L. Ott and G. A. Laughlin of Wheeling, W. Va., and others. It is understood that the company will erect a large plant at Moundsville for the manufacture of car wheels.

The Ohio Valley Steel Foundry Company of Pittsburgh, with a capital stock of $150,000, were granted a charter at Charleston, W. Va., last week. The new company propose to build a large foundry at Padder City, a new industrial town on the Ohio River, between Clarksburg and Sistersville.

The Acme Foundry Company, Detroit, Mich., manufacturers of gray iron castings, have purchased a site on Beecher avenue upon which they will erect a new foundry, 90 x 100 feet. The officers are: Edward J. Woodison, president; F. G. Christian, secretary, and William Kahl, treasurer and superintendent.

The Chicago Car Wheel & Foundry Company, successors to the Ft. Wayne Foundry & Machine Company, have located on the Chicago Junction Railroad, in the packing house district, Chicago, the plant having been removed from Forty-seventh street and the Rock Island tracks. The reorganization of the Ft. Wayne Foundry & Machine Company was made for the purpose of interesting $150,000 additional capital.

The Vulcan Iron Company of Chester, Pa., have received orders for ladles and oven cars for a new steel plant at New Haven, Conn.

Bridges and Buildings.

The report that the American Bridge Company had lost contracts amounting to $1,000,000 as a result of the failure of the Municipal Assembly of St. Louis to grant railroad franchises is incorrect. It is true, however, that a portion of the St. Louis Terminal work had to be canceled by reason of the inability of the railroad officials to secure necessary local legislation. The American Bridge Company are now doing a very large amount of railroad work in St. Louis, preparatory to handling the crowds that will attend the fair next year.

The Noelke-Richards Iron Works, Indianapolis, Ind., have been awarded the contracts for the steel superstructure and the grille and ornamental iron work of the new interurban terminal station at Indianapolis. The contracts amount to $130,000, and the steel work calls for the employment of 1850 tons of material. The contracts were awarded at the office of D. H. Burnham & Co., Chicago, architects. Other bidders on the same contracts were the American Bridge Company of New York, Jones & Laughlin Steel Company, Pittsburgh; Pothoff & Frey Iron Works and L. Schreiber & Sons Company, Cincinnati; McClintock-Marshall Construction Company, Pittsburgh; Stewart Iron Works, Cincinnati; Hansel-Ellcott Iron Works, and South Halsted Street Iron Works, Chicago, and the Brown-Ketcham Iron Works of Indianapolis.

Fires.

A portion of the axle plant of the Standard Iron & Steel Company, at Burnham, Pa., was burned July 5, involving a loss of $25,000, fully insured. The building will be repaired at once.

Three buildings of the Laflin Powder Works, at Laflin, Pa., were wrecked by an explosion July 13.

The Bellefonte Window Company's plant, at Bellefonte, Pa., was burned July 12, causing a loss of about $60,000.

The plant of the Yatman Rubber Company, Kearny, N. J., was destroyed by fire July 11, entailing a loss of $25,000.

The Hornellsville Foundry, Hornellsville, N. Y., was destroyed by fire July 8. The loss is placed at $30,000.

The mill of the Stark Paper Company, Shaftsbury, Vt., was destroyed by fire July 14, entailing a loss of $15,000.

Hardware.

The plant of the Page Woven Wire Fence Company, at Monessen, Pa., has been closed down and will remain idle until Monday, August 17, in order to make necessary repairs. However, the main factory of this concern, which is located at Adrian, Mich., continues manufacturing both wire and iron fencing during the summer months, even though the mill at Monessen is temporarily closed, as the heavy demand for fencing necessitates continuous operation of the Adrian plant.

The Hart Mfg. Company of Greenville, Ohio, manufacturers of door and window screens, who have just closed their first season in their new plant, have found it necessary to enlarge by the erection of a new two-story brick building, 135 x 136, to be used as a warehouse. The contract for this addition has just been let. The season's trade with them has been more than gratifying.

The Matthews Edge Tool Works, Matthews, Ind., and the Central Tool Works of Jonesboro, Ind., have been bought by and merged into the East Chicago Co-operative Edge Tool Company, who will erect a plant at East Chicago. F. F. Bartlett Matthews was the chief promoter of the new company.

Miscellaneous.

The West Lafayette Stamping & Enamel Company have been organized, at Coshocton, Ohio, with a capital stock of $50,000. D. A. Raiff is president and John Kirk secretary.

The Standard Steel Car Company of Pittsburgh, with works at Butler, Pa., have decided to increase their capital stock from $3,000,000 to $5,000,000, and in addition will issue bonds to the amount of $2,000,000. The main building will be extended by an addition of 240 x 500 feet. It is the intention to make sufficient increase in their capacity to allow them to turn out about 100 steel cars per day.

The Long-Arm System Company, Cleveland, Ohio, have received orders for all standard navy swing doors and coal bunker trimming doors required for the United States battle ships "Rhode Island" and "New Jersey," building at the Fore River shipyards, Quincy, Mass. They have also under construction all navy standard swinging and coal bunker trimming doors required for the United States cruisers "Colorado" and "Pennsylvania," and for the Turkish cruiser "Mejidia," building at the Cramp shipyards, Philadelphia.

The Trumbull Electric Mfg. Company, Plainville, Conn., have about completed a two-story and basement addition to their plant, 35 x 50 feet. The machinery has been purchased.

The Reading Gas Fixture Company of Reading, Pa., will apply for a charter July 31. The company have a paid up capital of $50,000, in $50 shares. The incorporators are H. M. Cohen, C. N. Kissinger, H. F. Kantner and Gustave Bromund of Reading, and Nicholas Dennebaum of Pottsville. Mr. Kissinger is president, Mr. Cohen vice-president and C. W. Kissinger secretary and treasurer. The product will be all kinds of brass fixtures.

It is reported that the Middletown Car Company of Middletown, Pa., are considering seriously combining with one of the larger car building concerns.

The Pittsburgh Reduction Company expect that by fall the output of their lower Niagara works will be increased about 50 per cent. This plant is located on the lands of the Niagara Falls Hydraulic Power & Mfg. Company, the product being aluminum.

Representatives of the recently organized United States Packing Company were in Kansas City a few weeks ago looking for a site for their plant. It is understood that about $1,000,000 is to be invested in buildings and equipment. Governor James H. Peabody, Denver, Col., is interested.

None of the machinery equipment was damaged by the fire which recently burned part of the plant of the Riddle Coach & Hearse Company, Ravenna, Ohio.

A coppersmiths' shop, 49 x 73 feet, is being added to the equipment of the Fore River Shipyard on Quincy Point, Boston harbor. The new building is alongside the fitting out basin and is planned to be extended along the dock as future needs may require. It will ultimately include a riggers' loft and a paint shop. The construction of the addition at the seaward end of the fitting out dock is being pushed fast. The founda-

tion piling has been set, and work on the concrete walls will begin at once. When completed the dock and the gantry crane tracks upon it will be 1200 feet long.

The New England Brazing Company, Stoneham, Mass., have organized for the brazing of cast iron and other metals. The company lately brazed the spokes in a 22-ton fly wheel for F. W. Bird & Co., Walpole, Mass., and they state that the engine is now running satisfactorily. J. A. Jones of 5 Odd Fellows' Block is interested.

The Cambria Steel Company, Johnstown, Pa., are building 1000 steel gondola cars for the Chicago, Burlington & Quincy Railroad, which are being delivered at the rate of about 30 per day.

The Wabash Railroad in Pittsburgh.

Masonry and grading contracts amounting to over $4,000,000 are about to be let by the Wabash road for its Pittsburgh extension. The work of preparing for these lines has been going steadily ahead, and much of the territory through which the lines will be run is being inspected by George J. Gould. Bids were asked this week for the masonry and grading of the greater part of the Greene County line of the Wabash. The part of the line which will now be put under contract without delay is that running from Patterson's Mills, near Hickory, Washington County, to Waynesburg, via Washington, Pa. The distance is 37 miles, and the cost is expected to be approximately $2,000,000. The work will be heavy in places, but the line is to be a thoroughly modern one, with light grades and easy curves. The part of this work from Patterson's Mills to Washington forms the western half of the "V" which will connect the Greene County line with the through line. It is intended as the western outlet and also the western inlet to the coal and coke country and for through business. The work on the eastern half of the "V," which will extend from Bishop via Canonsburg to Washington, is also ready for the start of construction. This contract covers 12 miles, and is expected to amount to about $700,000. This will be the route between Pittsburgh and the East. In addition to this work there is also another 12-mile line extending from Waynesburg to the State line, which is nearly ready for contractors. This will cost about $700,000. This line will connect the Greene County line with the Buckhannon & Northern, which extends from the West Virginia-Pennsylvania line to Belington, there connecting with the West Virgina Central. The Saw Mill run of the Wabash, extending through the southern end of Pittsburgh from the main line to the junction with the Union Railroad of the Carnegie Steel Company, is also about ready for letting, after a number of unexpected delays. The line will cost about $700,000.

The Boiler Makers' Strike in Pittsburgh.—The long standing strike between the boiler makers and their employers in the Pittsburgh district, and which has been on since May 1, will be submitted to arbitration in the next few days. Manufacturers are determined to adhere to their original compromise proposition, but the men have shown a willingness to arbitrate the matter and the employers have also agreed. The boiler makers originally demanded an advance of 60 cents a day and a reduction in hours, from nine to eight. This was refused by their employers, who offered an advance of 25 cents a day, without any reduction in working hours. M. M. Garland, formerly president of the Amalgamated Association, now Surveyor of the Port in Pittsburgh, will be one of the mediators in the settlement of the strike.

The Puddling Scale.—PITTSBURG, PA., July 15, 1903.—At a conference held in Youngstown, Ohio, on Tuesday, July 14, between officials of the Amalgamated Association, James H. Nutt of the Republic Iron & Steel Company, and Robert Lawson of the Carnegie Steel Company, the price of puddling for July and August was fixed at $6.25 a ton. This price is fixed on a basis of 1.7 cents for bar iron, and under the old Amalgamated scale, which expired on June 13, the puddlers would have received but $6.12½ for boiling, but under the terms of the new Amalgamated scale, effective from July 1, the puddlers received an advance of 25 cents a ton for each advance of one-tenth cent a pound in price of bar iron. Muck rollers will also receive a slight advance for July and August, being paid on the basis of $1.70 of the straight rate for puddling. Finishers will not receive any advance for July and August over rates paid for May and June.

PERSONAL.

F. C. Maurer, who was connected as traveling salesman with the American Tube & Iron Company for nine years and with the Harrisburg Pipe & Pipe Bending Company for the past three years, has been appointed general sales agent of the Susquehanna Steel & Iron Company. He will make his headquarters at Columbia, Pa.

Col. Charles James, organizer, vice-president and general manager of the Norway Iron & Steel Company of York, Pa., has resigned to become general manager of the Berwick Malleable Iron Company of Berwick, Pa., owned and operated by the American Car & Foundry Company. He will assume his new duties August 1.

Geo. H. Gibson has resigned as manager of the advertising and publication department of the B. F. Sturtevant Company of Boston, Mass., to accept an appointment with the International Steam Pump Company. Mr. Gibson was formerly connected with the Westinghouse Company's publishing department of Pittsburgh, Pa., and was for two years a member of the editorial staff of the *Engineering News* of New York City.

It is entirely probable that Alvin C. Dinkey, now general manager of the Homestead Steel Works, will be appointed president of that concern, to succeed W. E. Corey, when his resignation has been presented. However, it will probably be some little time before Mr. Corey retires to give his entire attention to the position of assistant to the president, C. M. Schwab, of the United States Steel Corporation.

Victor E. Edwards of the Morgan Construction Company of Worcester, Mass., has returned from a short trip to Paris, in connection with the company's contract with J. Moulton of Paris, manufacturer of steel and wire, for a Morgan continuous rod mill to roll two strands, together with furnaces, gas producers and other auxiliary machinery, already referred to in *The Iron Age*.

C. D. Rhodes, who has been connected with the Illinois Steel Company at Chicago, has been appointed general sales agent of the Lackawanna Steel Company, with headquarters at New York.

Pickands-Magee Coke Company.—The Pickands-Magee Coke Company, a new organization at Pittsburgh, who propose to take over and handle a part of the output of the Connellsville coke region, were chartered recently with a capital of $100,000. This it is proposed to increase as desired until the capitalization has reached $500,000. The company have opened offices on the twelfth floor of the Frick Building. They have working interests in 15 plants now doing business in the Connellsville district, and in time it is hoped to obtain control of the greater part of these. In fact, most of them are now subordinated to the new corporation. The Pickands-Magee Company are made up of members of Pickands, Brown & Co. of Chicago, and the president and treasurer is W. C. Magee, for many years vice-president of the Frick Coke Company. He will have charge of the interests of the company at Pittsburgh. Many of the smaller companies in the Connellsville district, who are subordinated to Pickands-Magee Company, are now shipping only from two to three cars of coke a day, all of the rest of their output going to the new company. At the conclusion of the contracts which the older and smaller works now hold with consumers it is the desire to merge them into the interests of the new company. The plants now controlled by Pickands-Magee Coke Company have a daily output of 100 cars.

It is reported that the United States Steel Corporation will convert the sheet mill which was erected by the Sharon Steel Company at Sharon, Pa., but never operated, into a tin plate mill. This, with the existing tin plate mills at Sharon, would make the largest works of its kind in the world, having an aggregate of 40 hot mills.

The Iron and Metal Trades.

The event of the week was the purchase by the United States Steel Corporation of a half interest in the Clairton furnace and steel plant of the Crucible Steel Company of America, which further reduces the tonnage of steel available in the open market of the Central West.

The halt in the buying movement in nearly all branches of the iron and steel trades continues. So far as Foundry Pig Iron is concerned the action of the associated Southern furnaces does not appear, from present indications, to have stimulated buying, which is not surprising in view of the fact that other producers had already arrived at the basis of $13.50 for No. 2 Birmingham, and had in fact gone below it, and since have been making further sales at $13. The labor situation at Birmingham is unchanged, and it seems likely that some banking of furnaces will begin this week. It is interesting to note that an unsuccessful effort was made at the meeting of the Southern furnaces to reach an agreement not to sell to consumers who have undelivered orders in the books of the members of the association. It is certainly a crying evil in the iron trade that contracts are so lightly repudiated on the first sign of a declining market.

The situation in Bessemer Pig in the Central West is interesting. It is understood that based upon the prospective consumption, the leading interest will not alone require the entire tonnage which its furnaces produce, and the Iron it has purchased in the open market, but will also have to cover a deficit, even assuming that all the delinquent Iron is delivered. Should it be found necessary to start the one Bessemer Steel plant, now undergoing repairs, then the deficit will be considerably increased.

Chicago reports that further commitments for Rails for 1904 have been made. They aggregate about 300,000 tons and include the St. Paul, Harriman and Santa Fe orders. The Harriman work is divided between the Illinois and the Colorado mills. From Cincinnati comes the report that the Tennessee Company have secured an order for 30,000 tons of Rails for delivery during 1904 from the Louisville & Nashville road, while it appears that an American mill has secured a Canadian order for 10,000 tons, with an additional quantity pending, in competition with European producers. On the other hand the report is confirmed that the Clark road purchased some weeks since 10,000 tons of German Rails, Pacific Coast delivery.

There are rumors of some large sales of Steel Billets, but these cannot be confirmed. The market is easier, and lower prices are being made by plants who are trying to market a moderate surplus above own requirements.

Little is being done, generally speaking, in Finished Material. Chicago reports a large sale of Car Axles, and Pittsburgh notes a good order for Pipe. Structural Material is dull. Iron Bars show some weakness in nearly all markets.

The condition of Old Material has been very unfavorable to sellers for some time past. In some sections it has been well nigh unsalable, and sellers have been lowering nominal quotations rapidly without attracting interest. Offerings on the part of the railroads seem very heavy.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

At date, one week, one month and one year previous.

	July 15, 1903.	July 8, 1903.	June 17, 1903.	July 16, 1902.
PIG IRON:				
Foundry Pig No. 2, Standard, Philadelphia	*$17.75*	$18.50	$18.75	$22.50
Foundry Pig No. 2, Southern, Cincinnati	*16.25*	16.25	17.75	20.75
Foundry Pig No. 2, Local, Chicago	*18.00*	18.00	19.50	21.50
Bessemer Pig, Pittsburgh	*18.75*	18.75	19.85	21.75
Gray Forge, Pittsburgh	*18.25*	18.50	18.75	21.00
Lake Superior Charcoal, Chicago	*22.00*	22.00	24.00	25.00
BILLETS, RAILS, &c.:				
Steel Billets, Pittsburgh	*27.00*	28.50	29.00	31.50
Steel Billets, Philadelphia	*29.00*	29.00	30.00	29.50
Steel Billets, Chicago	*29.50*	29.50	30.00	31.25
Wire Rods, Pittsburgh	*35.50*	36.00	36.50	36.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL:				
O. Steel Rails, Chicago	17.00	17.00	17.00	18.50
O. Steel Rails, Philadelphia	*19.25*	21.00	21.00	21.00
O. Iron Rails, Chicago	20.00	20.00	20.00	24.00
O. Iron Rails, Philadelphia	*22.00*	23.00	23.00	24.50
O. Car Wheels, Chicago	21.50	21.50	21.50	21.00
O. Car Wheels, Philadelphia	*20.00*	21.50	21.50	20.50
Heavy Steel Scrap, Pittsburgh	20.00	20.00	....	....
Heavy Steel Scrap, Chicago	16.50	16.50	16.50	19.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	*1.65*	1.75	1.75	1.95
Common Iron Bars, Chicago	*1.65*	1.65	1.70	1.75
Common Iron Bars, Pittsburgh	*1.65*	1.65	1.75	1.80
Steel Bars, Tidewater	*1.65*	1.75	1.75	2.00
Steel Bars, Pittsburgh	1.60	1.60	1.60	1.60
Tank Plates, Tidewater	1.75	1.75	1.78	2.00
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.75
Beams, Tidewater	1.73½	1.73½	1.73½	2.35
Beams, Pittsburgh	1.60	1.60	1.60	2.00
Angles, Tidewater	1.73½	1.73½	1.73½	2.35
Angles, Pittsburgh	1.60	1.60	1.60	2.00
Skelp, Grooved Iron, Pittsburgh	*1.85*	1.90	1.90	2.15
Skelp, Sheared Iron, Pittsburgh	1.95	1.95	2.00	2.20
Sheets, No. 27, Pittsburgh	2.65	2.65	2.65	2.90
Barb Wire, f.o.b. Pittsburgh	2.60	2.60	2.60	2.90
Wire Nails, f.o.b. Pittsburgh	2.00	2.00	2.00	2.05
Cut Nails, f.o.b. Pittsburgh	2.15	2.15	2.15	2.05
METALS:				
Copper, New York	*13.67½*	14.00	14.50	11.95
Spelter, St. Louis	5.45	5.50	5.50	5.00
Lead, New York	4.12½	4.12½	4.12½	4.10
Lead, St. Louis	4.02½	4.02½	3.90	3.97½
Tin, New York	*26.90*	27.15	28.60	28.80
Antimony, Hallett, New York	*6.50*	6.62½	7.00	8.25
Nickel, New York	40.00	40.00	40.00	50.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	3.99	3.99	3.99	4.19

Chicago.

FISHER BUILDING, July 15, 1903.—(*By Telegraph.*)

First in interest, if not in importance, of the events of the week has been the meeting of the Southern Furnace Association held last Friday, July 10. Some significant and radical action was anticipated, but the association seem to have contented themselves by merely adjusting official prices to more nearly harmonize with the real trading basis. Little good seems to have been accomplished, as large buyers have no confidence in the stability of the official prices, and with scarcely an exception they are holding off for future action, as further tips have been given that the $12 basis will yet be established. Business of the week has been confined to the purchase of Iron needed for current consumption only. A further heavy tonnage of Steel Rails has been placed for 1904 delivery, and a greater effort has been made to trade in Billets at a somewhat lower basis, and some sales of moment are said to have been closed in the East. Steel Bars have remained slow, but one feature of unusual interest has been developed, being the negotiation of distributers with Iron mills to roll Steel Bars from Billets furnished by the purchasers, an effort being made in this way to break the official price, but thus far the negotiations have met with indifferent success. Bar Iron has continued heavy and moderately active. Structural Material and Plates have been moderately active but firm, while Sheets have been quiet and easier. Old Material has continued heavy, and lower prices have been accepted in a number of instances. Coke has continued slow and easy.

Pig Iron.—Up to the meeting of the Southern Association on Friday of last week business was more than usually dull, being confined to single cars and 100-ton lots to cover

pressing requirements. On the day previous to the meeting large Pipe works were forced into the market, they having allowed yards to become completely bare, and two of the plants having suspended operations for lack of Pig Iron. These buyers were forced to pay a premium for prompt shipment, among the sales being 6000 tons Southern No. 2 Foundry at $14 and 2000 tons do. at $13.50, Birmingham. These sales, however, were made on the Ohio River; not in the Chicago district. Upon the announcement of the fixing of the official price at $13.50, Birmingham, for No. 2 Foundry several trades which had been pending were closed on that basis, among them being one lot of 500 tons No. 2 at $13.50, Birmingham, for July and August shipment. At the association meeting it developed that two of the largest Southern companies had accumulated stocks rapidly recently, one company having between 50,000 and 60,000 tons, 30,000 tons of which are said to have been sold, and should have been delivered during the first half of the year, but shipments were held up by request of the buyers. An effort was made at the meeting to bring about an agreement by which the various furnaces would agree not to sell to consumers who had undelivered orders on the books of other members of the association, a list of such delinquents to be furnished to each company. The proposed agreement was not subscribed to, however. Independent furnaces, both before and since the establishment of the "official price," have continued to sell at from 50c. to $1 per ton under the official market, but without being able to draw any larger orders than 300 tons in individual lots, nearly all buying being for early shipment, but round lots now are under negotiation for late delivery. Among the sales may be noted 300 tons No. 2 at $13.15; 200 tons do., $13; 200 tons do., $12.50; 200 tons No. 2 Soft, $12.50; 200 tons Gray Forge, $11.50; 300 tons Mottled, $11, all Birmingham basis; 300 tons Northern Silvery Iron, 10 per cent. Silicon, at $23.30, delivered, Chicago. Sales of small lots of Northern Foundry Iron are reported at $17.50 for No. 2 at a Wisconsin point, equivalent to $12, Birmingham. Some trades of Malleable Bessemer are pending at a little under prices previously quoted, and some round lots of Foundry Iron for the last half of the year delivery are being negotiated on the basis of $12, Birmingham. Implement manufacturers have purchased only in small lots of Silvery Iron recently, the largest purchasers being Cast Iron Pipe companies, radiator and machinery manufacturers. It will be noted that local Iron is held at much higher prices, but only single car lots are selling, and other Northern Iron is being sold at from 50c. to $1 per ton under quotations. The following are the approximate quotations, f.o.b. cars, Chicago, all for quick shipment; for the last half of the year these quotations could probably be shaded 50c. to $1 per ton:

Lake Superior Charcoal	$22.00 to $23.00
Local Coke Foundry, No. 1	18.50 to 19.00
Local Coke Foundry, No. 2	18.00 to 18.50
Local Coke Foundry, No. 3	17.50 to 18.00
Local Scotch, No. 1	20.00 to 21.00
Ohio Strong Softeners, No. 1	20.00 to 20.50
Ohio Strong Softeners, No. 2	19.00 to 19.50
Southern Silvery, according to Silicon	19.60 to 20.50
Southern Coke, No. 1	17.85 to 18.35
Southern Coke, No. 2	17.35 to 17.85
Southern Coke, No. 3	16.85 to 17.35
Southern Coke, No. 1 Soft	17.85 to 18.35
Southern Coke, No. 2 Soft	17.35 to 17.85
Foundry Forge	16.35 to 16.85
Southern Gray Forge	15.85 to 16.25
Southern Mottled	15.35 to 15.85
Southern Charcoal Softeners, according to Silicon	21.85 to 22.85
Alabama and Georgia Car Wheel	25.85 to 26.85
Malleable Bessemer	19.00 to 19.50
Standard Bessemer	19.50 to 20.00
Jackson County and Kentucky Silvery, 6 to 8 per cent. Silicon	21.30 to 23.30

Bars.—The largest consumers of Steel Bars are understood not to have closed contracts for 1903-1904 delivery, and even sales to small consumers have been light. Strenuous efforts are being made by consumers to obtain some advantage, one of the most interesting movements being the effort to arrange with rolling mills to roll Steel Bars from Billets furnished by distributers at a manufacturer's profit. It develops that recent reports by consumers of lower prices for Steel Bars have been for Bands and Hoops rather than for Bars, which are held firmly. There has been a moderate tonnage of Bar Iron placed for various deliveries throughout the year, but mainly for quick shipment, the mills desiring early specifications. Sales have continued to be made on the basis of 1.65c. to 1.70c., Chicago. The following are the prices current, f.o.b. cars Chicago, mill shipment: Bar Iron, 1.65c. to 1.70c.; Soft Steel Bars, 1.76½c. to 1.86½c.; Hoops, 2.16½c. to 2.26½c.; Angles, under 3 inches, 1.86½c. to 1.91½c., base. There has been a moderate merchant trade and the market has remained steady for shipment from local stocks, the following being the prices current: Bar Iron, 2c. to 2.15c.; Soft Steel Bars, 2c. rates; Angles, under 3 inches, 2.10c. rates, and Hoops, 2.40c., base, from store.

Structural Material.—Car shops have placed orders for about 10,000 tons of Steel Axles, and there has been a moderate demand for railway and highway bridge material. It is reported that the contract for the warehouse for Carson, Pierie, Scott & Co. has been placed with contractors, and if this building is of mill construction it will require about 5000 tons of Structural Material; but it is understood that the order for Steel has not been placed as yet, as there may be some change in the plans. The market has continued steady at the following prices: Beams, Channels and Zees, 15 inches and under, 1.75c. to 1.90c.; 18 inches and over, 1.85c. to 2c.; Angles, 1.75c. to 1.90c. rates; Tees, 1.80c. to 1.90c.; Universal Plates, 2c. to 2.25c. There has been little, if any, improvement in the demand for shipment from local stocks and the market has remained steady, as follows: Beams and Channels, 2¼c. to 2½c.; Angles, 2.25c. to 2.50c.; Tees, 2.30c. to 2.55c., at local yards.

Plates.—But little, if any, new business of moment has been placed, but the market has remained firm as previously quoted, the following being the prices current, f.o.b. cars Chicago, mill shipment: Tank Steel, ¼-inch and heavier, 1.75c. to 2c.; Flange, 1.85c. to 2.15c.; Marine, 1.95c. to 2.10c. There is a fair demand for shipment from local warehouse and the market has remained steady, as follows: Steel, ¼-inch and heavier, 2.15c. to 2.20c.; Tank Steel, 3-16 inch, 2.25c. to 2.30c.; No. 8, 2.30c. to 2.40c.; Flange Steel, 2.40c. to 2.50c., all f.o.b. warehouse Chicago

Sheets.—There has been only a moderate movement in either Black or Galvanized Sheets and the market has been weaker in tone, lower prices being reported, especially for Light Black Sheet. The following are the prices current, f.o.b. cars Chicago, for Black Sheets, mill shipment; No. 10, 2.06½c. to 2.16½c.; No. 12, 2.16½c. to 2.26½c.; No. 14, 2.26½c. to 2.36½c.; No. 16, 2.36½c. to 2.46½c.; Nos. 18 and 20, 2.50½c. to 2.60½c.; Nos. 22 and 24, 2.60½c. to 2.70½c.; No. 26, 2.70½c. to 2.80½c.; No. 27, 2.80½c. to 2.90½c.; No. 28, 2.90½c. to 3.00½c. The light demand for shipment from local stocks is readily met at 10c. to 15c. over mill prices. Galvanized Sheets have been dull and heavy at 75 and 5 to 75 and 7½ discount, Chicago, mill shipments. Small shipments from local stocks are made on the basis of 75 and 2½ discount.

Cast Pipe.—The market has been very quiet, no large business of any kind having been closed during the week, and the market is weaker in tone. Round lots could probably be purchased at $1 a ton under previous prices, and lower prices are even anticipated for small lots, which are quoted as follows, f.o.b. cars Chicago: 4-inch, $33; 6-inch, $32; 8-inch, $31.50, and larger, $31 for Water, and $1 per ton higher for Gas Pipe.

Billets.—Business in the Chicago market proper has been confined to jobbing lots almost entirely, but local dealers announce the sale of 2500 tons of Open Hearth Billets at $28.50, Pittsburgh, while $27, Pittsburgh, was bid for 10,000 tons of 4 x 4 Bessemer Billets, but without finding lodgment at the mills. On the other hand, it was reported that a large tonnage was sold in the East at about this basis. Bessemer Rerolling Billets are nominally quotable at $29.50 and Open Hearth at $30, Chicago, in round lots, but single cars of Open Hearth have sold at $32.50 to $38, according to analysis, buyer and time of delivery, while premiums of $1 per ton are charged for less than carload lots.

Merchant Pipe.—The mills continue to secure a good current order trade without new features, and the market has continued firm in tone at the previous schedule of discounts, which are as follows for carload lots, Chicago base, random lengths, mill shipment:

	Steel Pipe.		Guaranteed Wrought Iron.	
	Black.	Galvd.	Black.	Galvd.
	Per cent.	Per cent.	Per cent.	Per cent.
⅛ to ⅜ inch	66.35	56.35	63.35	53.35
½ inch	68.35	58.35	65.35	55.35
¾ to 6 inches	73.35	63.35	70.35	60.35
7 to 12 inches	67.35	57.35	64.35	54.35

Less than carloads, 12½ per cent. advance.

Boiler Tubes.—The mills continue well supplied with orders, and the market is firm in tone without new features. The following schedule of discounts is current:

	Steel.	Iron.
1 to 1½ inches	43.35	38.35
1¾ to 2½ inches	55.85	35.85
2¾ to 5 inches	60.85	45.85
6 inches and larger	55.85	35.85

Less than carloads, 12½ per cent. advance.

Distributers report a continued good demand from manufacturers, and the market remains firm at the following schedule of discounts for shipment from local stocks:

	Steel.	Iron.
1 to 1½ inches	40	35
1¾ to 2½ inches	50	32½
2¾ to 5 inches	57½	42½
6 inches and larger	50	..

Merchant Steel.—While the market has remained quiet in the Chicago district proper, a considerable increase in trade is reported in Indiana, Ohio and Michigan, covering Machinery and Spring Steel and agricultural specialties. There has been a good demand for Shafting, and the market has remained steady, the following being the official prices for mill shipment, Chicago: Smooth Finished Machinery Steel, 2.01½c. to 2.11½c.; Smooth Finished Tire, 1.96½c. to 2.11½c.; Open Hearth Spring Steel, 2.66½c. to 2.76½c.; Toe

Calk, 2.31½c. to 2.46½c.; Sleigh Shoe, 1.86½c. to 1.96½c.; Cutter Shoe, 2.41½c. to 2.61½c. Ordinary grades of Crucible Tool Steel are quoted at 6c. to 8c. for mill shipment; Specials, 12c. upward. Cold Rolled Shafting in carload lots sells at 47 and in less than carload lots at 42 discount from list.

Rails and Track Supplies.—Further large orders for 1904 delivery have been placed by Western railroads, the local mill now having booked orders for 300,000 tons for 1904 delivery, among the largest recent sales being 40,000 tons for the Chicago, Milwaukee & St. Paul Railway and 12,000 tons for the Santa Fé. It is understood that about half the tonnage required by the Central and Southern Pacific roads has been placed with the Colorado mills, and that the balance will be placed with the local mill, the engineers of the Harriman system now being in Chicago arranging details. There has also been a fair demand for Light Rails, with some considerable sales made. The market remains strong in tone, with prices, of course, unchanged at $28 for standard and $27 for second quality, mill shipment. Light Rails have sold at $34 to $39, according to weight. Track Supplies have continued to sell well, and the market has remained firm at the following prices for mill shipment, Chicago: Splice or Angle Bars, 2c to 2.10c.; Spikes, 2.10c. to 2.15c.; Track Bolts, 3½ to 3¾ inches and larger, with Square Nuts, 2.85c. to 2.90c.; with Hexagon Nuts, 3c. to 3.10c. From store, 10c. to 15c. over mill prices are asked and obtained.

Old Material.—Freer offerings have been made by the railroads, and with only a moderate outlet through mills and furnaces the market has been weak, and lower prices have been accepted for Steel Rails, Fish Plates, Axles, both Iron and Steel, Railroad Wrought, Busheling and Turnings. The following are the prices current per gross ton, f.o.b. cars, Chicago:

Old Iron Rails	$20.00 to $20.50
Old Steel Rails, mixed lengths	17.00 to 17.50
Old Steel Rails, long lengths	19.00 to 19.50
Heavy Relaying Rails	31.00 to 31.50
Old Car Wheels	21.50 to 22.00
Heavy Melting Steel Scrap	16.50 to 17.00
Mixed Steel	14.50 to 15.00

The following quotations are per net ton:

Iron Fish Plates	$16.50 to $17.00
Iron Car Axles	20.50 to 21.00
Steel Car Axles	20.00 to 20.50
No. 1 Railroad Wrought	14.75 to 15.25
No. 2 Railroad Wrought	14.00 to 14.50
Shafting	17.00 to 18.00
No. 1 Dealers' Forge	13.00 to 14.00
No. 1 Busheling and Wrought Pipe	12.00 to 12.50
Iron Axle Turnings	11.50 to 12.00
Soft Steel Axle Turnings	11.50 to 12.00
Machine Shop Turnings	11.50 to 12.00
Cast Borings	7.00 to 7.50
Mixed Borings, &c	8.00 to 9.00
No. 1 Boilers, cut	.... to 13.00
Heavy Cast Scrap	14.00 to 14.50
Stove Plate and Light Cast Scrap	.... to 10.00
Railroad Malleable	15.00 to 15.50
Agricultural Malleable	.... to 14.00

Metals.—Copper has continued dull and weak, with light sales of Casting Copper at 13⅝c., but round lots would be difficult to sell over 13½c. Lake is held at 13¾c. to 14c., Chicago, in carload lots. Spelter has been quiet but steady at 5½c. in carload lots for July and August shipments. Sheet Zinc has been in moderate demand at 6¾c., spot. Pig Lead has remained unchanged with a fair movement, prices remaining nominal at 4.05c. in 50-ton lots and 4.07½c. in carload lots. Old Metals have been dull and easy at previous prices, which are as follows: Heavy Cut Copper sells at 11⅜c., Red Brass at 10⅞c., Copper Bottoms at 10⅝c., Lead Pipe at 3.75c., and Zinc, 4.65c., spot.

Coke.—The market has been lifeless, and for all there has been considerable inquiry it has resulted in but little business of moment either for contracts or for quick shipment at ovens. Furnace Coke is offered at $2 to $2.50, and Standard Foundry Coke at $3 to $3.50 at the ovens. Sales of spot supplies are made at $4.65 to $5.65, the inside for Furnace and the outside for Foundry Coke, on track.

The Chicago office of the McKeesport Tin Plate Company, Thos. S. Gordon, Western sales manager, has been removed from 1011 New York Life Building to 1200 Fisher Building, Chicago.

Cincinnati.

FIFTH AND MAIN STS., July 15, 1903.—(*By Telegraph.*)

The Southern associated furnaces at their meeting last week reduced the Pig Iron schedule to the basis of $13.50, Birmingham, for No. 2 Foundry. This was a cut of $1.50 on the old basis, but nevertheless was not yet quite down to the market as established by other furnaces nearly a week previous. Perhaps the reduction has been productive of an increase in inquiry—some agents report that it has—yet so far but very little actual business has resulted. Authorities here still continue, as a rule, to regard the situation as containing many strong features, and yet they do not freely express opinion as to what is likely to happen, either in the way of price or trade. Buyers are said to be expecting further reduction, and the condition for that and other reasons is simply stagnant. Freight rates from the Hanging Rock district, $1.15, and from Birmingham to Ohio River points, $3.25. We quote, f.o.b. Cincinnati, for delivery throughout the year, as follows:

Southern Coke, No. 1	$16.75 to $17.25
Southern Coke, No. 2	16.25 to 16.75
Southern Coke, No. 3	15.75 to 16.25
Southern Coke, No. 4	15.25 to 15.75
Southern Coke, No. 1 Soft	16.75 to 17.25
Southern Coke, No. 2 Soft	16.25 to 16.75
Southern Coke, Gray Forge	14.75 to 15.50
Southern Coke, Mottled	14.50 to 15.50
Ohio Silvery, No. 1	24.15 to 24.65
Lake Superior Coke, No. 1	18.15 to 18.65
Lake Superior Coke, No. 2	17.65 to 18.15
Lake Superior Coke, No. 3	17.15 to 17.65

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	$26.25 to $26.50
Lake Superior Car Wheel and Malleable	23.50 to 24.00

Steel Rails.—The Louisville & Nashville Railroad has bought from the Tennessee Coal, Iron & Railroad Company 30,000 tons of Steel Rails, for delivery during the first six months of 1904. The company some time since ordered 5000 tons for delivery during the present year.

Philadelphia.

FORREST BUILDING, July 14, 1903.

The beginning of the last half of the year, from a business standpoint, has not been such as could be desired, and it is a difficult problem to decide just where we are at. Some good features are in evidence, but in the main it is impossible to disguise the fact that there is much that is of a doubtful character. Crop prospects are not entirely favorable, although they are good in some sections, and may yet change for better or worse in others, as there is plenty of time for changes before maturity. The financial situation is causing anxiety, and while a favorable outcome is hoped for it is conceded that there are ample grounds for conservatism. Labor is less exacting than it was some time ago, and there is reason to believe that in this respect there is a distinct improvement. The output of Pig Iron is, however, very large, and as it is almost impossible to effect sales in quantity the immediate situation is decidedly discouraging. For months past it has been reiterated in these columns that a readjustment would have to be made before there could be a settled market, but it has been delayed so long that it may be a task of considerable difficulty to accomplish it satisfactorily. It will have to be met, however, but upon what basis remains to be seen. The demand, as previously intimated, is the smallest that has been known for years. It is a rare occurrence to find a buyer for more than 200 or 300 tons, and the majority of sales are in still smaller quantities, so that there has been no chance to test the market as regards prices. Small lots go on the basis of $18.50 to $19 for No. 2 X Foundry, but less than $18 could be easily done on a 500 or 1000 ton order; but these are so seldom met with that it is almost impossible to give a definite quotation. Consumption keeps up remarkably, considering the season, and in sizing up the situation it must be remembered that a great deal more metal is being melted than is being bought, which in course of time will naturally lead to renewed activity, although the question of prices may be somewhat problematical. For the present, therefore, business as regards Iron and Steel does not present a very hopeful appearance, although at the reduced prices which are now being established the situation should be safer than at the high figures of last year, which in a measure are responsible for the unsettled conditions which now prevail.

Pig Iron.—The disposition to defer placing new business is as marked to-day as at any time for a month past, although sellers are prepared to make liberal concessions. On such small lots as buyers are willing to take pretty fair prices are obtained, but for round lot deliveries, to run to the end of the year, very considerable reductions would be made. On such a market it is impossible to give exact quotations, but $18 would be shaded for No. 2 X Foundry, and sales have been made at as low as $17 for No. 2 Plain, but ordinarily $18.25 to $18.75 is quoted for No. 2 X and $17.50 to $18 for No. 2 Plain. There is no uniformity, however, and every seller makes his own prices, according to the circumstances in each particular case. Some well informed people think that present conditions will continue into next month, as there is a good deal of metal to be delivered on old contracts, and until these are completed there is nothing to be gained by making new engagements. On the whole deliveries are well taken, and special efforts are being made to complete them with as little delay as possible. Opinions differ as to what prices will prevail when renewal contracts are made, but it looks like a lower figure than $18, delivered, for No. 2 X Foundry, and, in fact, bids at 25c to 50c. less would stand a good chance of being accepted even now, providing the quantity and delivery were desirable. With so many complications as there are at the present time, it is impossible, however, to do more than give a general outline

of the market pending further developments. To-day's prices for small lots, delivered, are about as follows:

No. 2 X Foundry	$18.00 to $18.50
No. 2 Plain	17.50 to 18.00
Gray Forge, Standard	17.50 to 18.00
Ordinary Gray Forge	17.00 to 17.25
Basic	17.75 to 18.00

Steel.—Inquiries are very numerous, but sales are light, as buyers consider that prices are too high in proportion for the products. The demand runs largely on special carbons, and in these a fair business is being done in small lots. Buyers' ideas are about $28.50 to $29, delivered, for ordinary Basic Open Hearth Steel, but sellers ask 50c. to 75c. more money. The new plant of the Alan Wood Iron & Steel Company, at Conshohocken, is fully employed and is turning out grades of Steel that meet with the highest approval.

Plates.—In a comparative sense the Plate trade is in good condition. New orders are not as numerous or as large as they have been, but the mills have plenty of work, and see no reason to expect anything less favorable in the near future. Buyers are running more on the week to week plan than they did a year ago, as they do not anticipate any difficulty in getting deliveries, but they are consuming heavily, and expect to maintain this position for an almost indefinite period. Prices unchanged as follows for deliveries in buyers' yards: Carload lots, ¼-inch and thicker, 1.75c. to 1.80c.; Universals, 1.75c.; Flange, 1.90c.; Marine, 2c. to 2.05c.; Fire Box, 2.10c. to 2.20c.; smaller lots 1-10 to 2-10 more money.

Structural Material.—Business in this line has suffered considerably from the strikes in the building trades, so that deliveries can be promptly made on new orders. The general outlook is not unusually promising, although when things get in running order again, mills expect to have plenty of work. Prices unchanged—viz.: Beams, Angles or Channels, ordinary sizes, 1.73½c. to 1.80c. for carload lots, with the usual addition for smaller quantities.

Bars.—There is not much demand at the present time, and prices for Refined Iron are very irregular. Some sales are reported at as low as 1.65c., delivered, but 1.70c. is probably nearer to the market for carload lots of good Refined Iron. Steel Bars are easy at 1.65c. to 1.70c., but there is no great demand at the present time.

Sheets.—There is a very good demand, and as the mills start up they appear to have quite a nice batch of business to start on. Prices are irregular, according to the kind of order, but there is an impression that next month will see a better market.

Old Material.—At the present time there is no market at all, so that it would be useless to quote prices. An occasional small lot of some particular article may be wanted, in which case the price would be within the limits named below, but there is no regular market for anything. Prices are therefore more or irregular, and in absence of actual sales are nominally as follows:

Old Steel Rails	$19.25 to $19.75
Heavy Steel Scrap	19.00 to 19.50
Low Phosphorus Scrap	26.00 to 27.00
Old Steel Axles	22.00 to 23.00
Old Iron Rails	22.00 to 23.00
Old Iron Axles	25.00 to 26.00
Old Car Wheels	21.50 to 22.00
Choice Scrap, R. R. No. 1 Wrought	19.00 to 20.00
Country Scrap	18.00 to 18.50
Machinery Scrap	17.50 to 18.00
No. 2 Light Scrap	17.00 to 18.00
No. 2 Light (Ordinary)	12.00 to 12.50
Wrought Turnings	14.00 to 14.50
Wrought Turnings, Choice Heavy	14.75 to 15.00
Cast Borings	9.00 to 10.00
Stove Plate	12.50 to 13.00

Cleveland.

CLEVELAND, OHIO, July 14, 1903.

Iron Ore.—The market has heard a few inquiries for sales of Iron Ore, but as yet no transactions have been reported. The sales if made will be occasioned by transactions in Pig Iron which are pending. The prices are unchanged, being based on Red Hematite Ore, as follows: $4.50 for Bessemer quality and $4 for Mesaba Bessemer quality. The lake movement is slow. The ports are congested with boats and the docks have a short supply of railroad equipment. Conditions generally are not conducive to a heavy movement of the material.

Pig Iron.—The situation in the Pig Iron market is generally better. The buyers of Foundry are beginning to show some interest in the market and have been making inquiries. No sales have been made of any importance yet. No. 2 Strong Foundry is quoted ranging between $18 and $18.50, in the Valley, both on spot delivery and on future transactions. Nos. 3 and 4 Foundry are considerably easier and the market is down to about $16 to $16.50, in the Valleys. There has been a fair call for Malleable Iron also, and the market has been somewhat better. The price most generally quoted is about $18.50, in the Valley. There has also been a call for Gray Forge and the sales, while in small lots, have been of satisfactory aggregate amount. The price has ranged about $18, in the Valleys. The Southern furnaces have decided to meet the cut made by the non-association stacks, and now the quotation is $13.50, Birmingham, for No. 2 Foundry. The consumers of Bessemer and Basic are beginning to look around a little for fourth quarter material, but nothing has been done. The prices are purely nominal, Bessemer ranging from $18.50 to $19.35, in the Valleys. and Basic ranging about $18.75, Valley furnace. The production in all grades has been satisfactory, and the shipment away from the furnaces has been free and untrammeled.

Finished Iron and Steel.—The market, on the whole, is in a very unsettled state. The conditions which create business are in evidence, but the mills show the liveliest interest in getting new orders and display evidences that they need further contracts to keep them running. In fact, in a general way, it may be said that the uneasiness of the millowners as to the immediate future is overcoming the better tendencies which are abundant in this territory. The call for Billets, Blooms and Bars of late has been very strong. The market has not been active, because the Steel Corporation have withheld their material from the market, refusing to make any sales. The outside concerns have been selling freely and have made some concessions in the price. The best quotation heard has been $28.50, Pittsburgh, with the general selling done at $29, Pittsburgh. The Plate trade has been dull in a general way. On Sheets about the same conditions have prevailed as heretofore. The market is easy, with small business going. There are neither sharp declines nor appreciable increases in the demand for material, with, however, steady ordering at former prices. We continue to quote: No. 27 Black Sheets out of stock, 3.05c. as a basis for all gauges; No. 14 Blue Annealed, in carload lots at the mill, 2.20c. as a basis; No. 27, One Pass Cold Rolled, in carload lots, 2.75c. at the mill. Galvanized Sheets, No. 27, out of stock, 4c. The Bar situation is very quiet. The big buyers on Steel are still holding off and the buyers of Bar Iron have showed no particular desire to cover. The Steel prices have not changed, being 1.60c., Pittsburgh, for Bessemer, and 1.70c., Pittsburgh, for Open Hearth. The Bar Iron prices have been sagging and are now quoted about 1.65c. to 1.70c., Youngstown.

Old Material.—The market has heard some inquiries for material lately and some sales are expected soon. A few minor transactions have been reported. The prices are still sagging and are likely to go lower. The quotations are revised as follows—all gross tons: Heavy Melting Steel, $19.50; Old Steel Rails, $20.50; Old Iron Rails, $22; Car Wheels, $20; Railroad Malleable, $17; Cast Springs, $8.50. All net tons: No. 1 Railroad Wrought, $18.50; No. 1 Busheling, $16, with the consumers claiming to have bought at $14.50; Wrought Turnings, $12 to $12.25; Iron Axles, $24; Cast Scrap, $15.50; Stove Plate, $12.

Birmingham.

BIRMINGHAM, ALA., July 13, 1903.

The market in Iron was devoid of any interesting features the past week. The rumor that the associated furnaces would lower quotations soon gained the ears of the trade and expectation was on tiptoe as to the effect of the action. Transactions were very light. Trading was almost nominal. The orders registered during one day of the week by one interest footed up 18, and there was not a single order for over 50 tons. Small as the orders were in volume, each was conditioned upon prompt shipment. Every move on the part of buyers clearly indicates a running out of stocks. There was one sale of 200 tons of No. 2 Foundry and a sale of 1000 tons of No. 1 Soft, conditioned upon a certain analysis. There were scattered sales of other grades, but they were of no significance and the lowered prices usurped the throne of quotations. Taking No. 3 Foundry as the base grade and the price as $13, and allow an upper and down difference of 50c. for each grade, and one has market prices. And it is not likely that they will be cut in this market. If they are it will be to a very limited extent, for production will be curtailed and those furnaces inclined to cut would be, because of capacity, limited to a small volume of business. We have now at contiguous points enough furnaces out of blast to make a material loss in output of Pig Iron, and by the middle of the week we will have at least ten furnaces banked, and it may be 12. That is not much of an incentive to cut prices. The dullness of the market and short supplies brought about by the Coal miners' strike are the causes of the banking. Its duration will depend in a great measure upon the duration of the strike. Some object to the statement that there is a strike and insist that cessation of labor pending settlement of scale of wages is no strike. But there is no scale of wages pending conclusion, as each side has rejected the propositions of the other. The miners as a body are not yet at work and there is no proposition from them to consider, and there is none to consider from the operators, for each has rejected the proposition of the other. The miners are fairly well fixed to hold out on a strike for a few weeks, and they could not have selected a time that better suited the operators for testing their respective strengths. Affairs are in just such a fix that one has a

hard time to arrive at any definite opinion as to action. Information from different sources is contradictory. Your correspondent had a hint on Saturday that an agreement would be arrived at this week, and from another source, equally as well informed, he was told that the stay out would last several weeks. It is producing a restless and a hurtful feeling to the business of the district, and to show that on their part the operators have been liberal employers, a table has been prepared by Col. T. G. Bush of the Alabama Consolidated Iron & Coal Company showing that in the last four years the minimum price for mining Coal has been exceeded each year. This minimum price has been 37½c. and the maximum price 55c. The price paid the miners averaged over 50c., and the total footing shows that during the four years from 1899 to 1902, inclusive, the amount paid the miners and the day men in excess of the minimum price basis (which was 37½c.) amounted to $8,926,341.23; and, assuming that this year's output will equal that of 1902, this sum would be increased $3,700,000, and for the five years ending 1903 the amount paid the miners above the minimum price for mining will be $12,700,000. It is assumed that the net profit on the Coal was 15c. per ton, which would give the operators a total profit of $5,265,326.10, as against $8,926,341.23 excess over the minimum wage paid the miners. And it is claimed that this excess is greater than the combined net profits of both the Iron and Coal interests for this period. This statement has not been contradicted and it is safe to assume that it is positively correct. It is accepted as correct by the operators and indorsed by them. It makes their position before the public a strong one and that of the miners as unreasonable. If there are negotiations pending they are being conducted very secretly. This week will inaugurate a full pledged strike or there will be a settlement of the differences by the acceptance of the operators' terms.

The Birmingham Boiler Works will, as soon as a site is definitely arranged at Gadsden, establish branch shops there, and will soon remove the parent shop here to East Birmingham, with the expectation of continuous growth.

The Cahaba Southern Mining Company, whose holdings are principally in Bibb County, have changed hands. The new owners control the Southern Cement Works here. About 3000 acres are involved, part of it being leased lands and part of it owned in fee simple.

(By Telegraph.)

BIRMINGHAM, ALA., July 15, 1903.—No change whatever in market condition of Iron. Reduction made last week at the Chicago meeting has not increased demand in any sense. In fact, some buyers have refused lots at shaded prices. The majority of furnaces are quoting and contending for established quotations. The Coal miners are still idle and nothing has occurred on which to base definite conclusion. Estimating that the average miner earns $100 per month, his loss at the end of this week from idleness would be $66, as against the increment demanded for the entire year, say $54. The suspension of work is at the miners' injury. There has absolutely nothing occurred that justifies definite conclusions, though a more hopeful feeling is growing in interested quarters. This week will determine results. There is a probability of further banking of furnaces if a settlement of the differences is not arrived at this week.

Pittsburgh.

PARK BUILDING, July 15, 1903.—*(By Telegraph.)*

Pig Iron.—As a result of the action of the Southern Furnace Association in making a further cut of $1.50 a ton in Foundry Iron at their meeting held in Chicago last week, the Pig Iron market is more unsettled than before, and buyers are more disposed to hold off making purchases. The new price of No. 2 Southern Iron is equal to $18.35, Pittsburgh, but it is a fact that some of the Southern furnaces located in Virginia and other sections are offering No. 2 Iron at very close to $17, Pittsburgh. It is the impression here that large consumers will not take hold until prices of Southern Iron have been put on a still lower basis. Southern Forge Iron is being offered as low as $16.25, Pittsburgh. Of course the Northern furnaces will not have to meet their figures, but will readjust their prices on a basis that will be very close to them. The market on Bessemer and Basic Iron continues dull and only small lots are changing hands. The usual asking price for Bessemer Iron by the Valley furnace interest is $18.50, at furnace, but outside furnaces are quoting on the basis of $18, Valley, equal to $18.85, Pittsburgh. It is practically certain that the Pig Iron market will continue dull until prices have settled down to a basis that consumers believe will warrant them in placing contracts. While the condition of the market is unsatisfactory, yet it is a fact that large Steel interests who have bought Iron from outside furnaces can ship it. The Bessemer and Basic end of the Pig Iron market is in much better condition and stronger in every way than the Forge and Foundry Iron part of the market.

Steel.—The Steel market has been quite active in the past week, a large tonnage in Billets, Sheet and Tin Bars having been placed, but prices have been on a lower level than for many months. The fact that prices of Steel have gone off to some extent has caused reports that Bessemer and Open Hearth Billets have been sold at close to $26, Pittsburgh, but this is emphatically denied. The price of Bessemer Billets to-day is about $27, Open Hearth, $28 for Low Carbons and $29 for High Carbons. It is insisted that the price of steel will not go below these figures. Bessemer and Open Hearth Sheet Bars are held at about $29, maker's mill, but on favorable contracts slightly lower prices have been made. The price of Tin Bars is about $29 for Bessemer and $30 for Open Hearth, cut to lengths. The supply of Sheet Bars is larger than for some time; several large Steel interests that have not been sellers in the open market heretofore are now offering Bars quite freely. It is estimated that in the past week or ten days contracts for 30,000 to 40,000 tons of Billets, Sheet and Tin Bars have been placed at above figures.

(By Mail.)

At the meeting of the Southern Furnace Association held in Chicago last week a further reduction of $1.50 a ton was made on Forge and Foundry Iron, No. 3 Southern being put at $13, No. 2 at $13.50 and Gray Forge at $12.50. This makes No. 2 Southern Iron $18.35 and Southern Gray Forge $17.35, f.o.b. Pittsburgh. As to whether large consumers will take hold at these prices is somewhat doubtful. It was the general expectation, and, in fact, it was advocated by some of the Southern furnace interests, that the price of No. 2 Foundry be put at $12, but this was strongly opposed, and the result was that $13.50 was agreed upon for No. 2. This will, of course, affect prices of Northern Irons, which will have to be sold very close to the figures ruling for Southern Iron. The Pig Iron market continues quiet, but in spite of adverse reports it is a fact that the large consumers of Bessemer Iron are urging shipments and are taking Iron as fast as the furnaces can ship it. There is a good deal of activity in the Steel market, and some round sales of Billets and Sheet Bars have been made, but at lower prices than have ruled for some time. The settlement of the labor troubles in New York and elsewhere is expected to benefit demand for some lines of Finished Iron and Steel that enter into the construction of buildings, such as Structural Material, Sheets and the smaller sizes of Pipe. Demand for Tin Plate and Pipe continues very active, and there is also a much better inquiry for Sheets. The market on Iron and Steel Bars, Wire products and Scrap is very quiet.

Plates.—A moderate amount of new tonnage is being placed, but the situation in Plates is quieter than for some time. However, the leading mills are prety well filled up for the next several months. Buyers are able to get prompt shipment, and prices are being rigidly held. We quote as follows: Tank Plate, ¼-inch thick and up to 100 inches in width, 1.60c., at mill, Pittsburgh; Flange and Boiler Steel, 1.70c.; Marine, Ordinary Fire Box, American Boiler Manufacturers' Association specifications, 1.80c.; Still Bottom Steel, 1.90c.; Locomotive Fire Box, not less than 2.10c., and it ranges in price up to 3c. Plates more than 100 inches wide, 5c. extra per 100 lbs. Plates 3-16 inch in thickness, $2 extra; gauges Nos. 7 and 8, $3 extra; No. 9, $5 extra. These quotations are based on carload lots, with 5c. extra for less than carload lots; terms net cash in 30 days.

Ferromanganese.—The market is very quiet, and 80 per cent. Ferro is still being quoted at $50, delivered. On a firm order and good sized tonnage this price would be shaded.

Muck Bar.—The lower prices on both Northern and Southern Forge Iron have caused a sharp decline in price of Muck Bar, and we now quote local makes of Muck Bar at $31, delivered at buyer's mill. It is possible that on a firm offer this would be shaded.

Merchant Steel.—There has been a decided improvement in demand for some kinds of Merchant Steel, particularly Sleigh Shoe, Spring and also Tool Steels. It is said that some very low prices have recently been made on Spring Steel. The Shafting Association reaffirmed prices at their meeting last week. We quote: Sleigh Shoe Steel, 1.75c.; Open Hearth Spring, 2.30c. to 2.40c.; Sleigh Shoes, Tapered and Bent, 2.25c.; Toe Calk, 2.25c. to 2.30c.; Tire Steel, 1.75c. to 1.80c. All the above prices are subject to the usual differential of $2 a ton advance for less than 2000 lbs. and not less than 1000 lbs., and $6 a ton for less than 1000 lbs. Cold Rolled Shafting is 47 per cent. off in carloads and 42 per cent. in less than carloads, delivered in base territory.

Steel Rails.—No large contracts have been placed in the past week, but we are advised that some good sized inquiries are in the market and a good deal of tonnage is expected to be placed in the near future. Some material improvements and additions to equipment have about been finished at the Edgar Thomson Rail mill at Bessemer. We quote $28, at mill, for Standard Sections in 500-ton lots and over.

Structural Material.—No large contracts have recently been placed in this district, but there is a steady run of small orders which aggregate a good deal of tonnage. It has been estimated that the labor troubles in the Pittsburgh district have held up fully $3,000,000 worth or more of work, among these being the large Oliver office building on Smithfield street and the Frick Hotel on the Cathedral site. This latter building Mr. Frick contemplated making the finest hotel in the country. Nothing will be done on either of these enterprises this year. The American Bridge Company are now running the forge shop and Eye Bar mill at the new

works at Ambridge, and have turned out 12-inch Eye Bars for the Wabash bridges across the Monongahela and Ohio rivers, and are now turning out 14-inch Eye Bars for these structures. There is no change in prices and we quote: Beams and Channels up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6, 1.60c.; Zees, 1.60c.; Tees, 1.60c.; Steel Bars, 1.60c., half extras, at mill; Universal and Sheared Plates, 1.60c. to 1.70c.

Sheets.—A material improvement in demand for Sheets is reported and some of the mills have booked a good deal of tonnage in the past week. However, the trade are somewhat backward in placing contracts for late in the season delivery. Prices are fairly strong, the general market on No. 27 Black Sheets, one pass, being 2.65c, but on good orders 2.60c. is being done. No. 28 is generally quoted at 2.75c. in carload lots, but in larger lots about 2.70c. is being done. Galvanized Sheets are held at 75, 10 and 2½ per cent. off in carloads and larger lots, jobbers charging the usual advances for small lots from store.

Hoops and Bands.—The Sharon Steel Hoop Company have signed the Amalgamated scale, being conceded some reductions on account of improved machinery. Their plant is now in full operation. A fair amount of tonnage is being placed, but the mills are only moderately busy. We quote: Cotton Ties, 87c. in 10,000-bundle lots or over; 92c. for carloads; Steel Hoops, 1.90c. in 250-ton lots and 2c. for carloads; Bessemer Bands, 1.60c. to 1.70c. for Open Hearth. Steel card.

Iron and Steel Bars.—The market on Iron Bars is somewhat unsatisfactory, and there is considerable unevenness in prices being quoted by some of the mills. As a rule consumers are placing orders mostly for small lots, but the mills have a good deal of tonnage on their books and regard the outlook as fairly satisfactory. Iron Bars are quoted at about 1.65c. at mill, equal to 1.70c. to 1.75c., Pittsburgh, depending upon freight. In Steel Bars a fair tonnage is being placed, but the large buyers have not yet come into the market to place their season contracts. We understand that some of the mills rolling Steel Bars are somewhat short of specifications. We quote at 1.60c., Pittsburgh, in carloads and larger lots. For quantities less than 2000 lbs. but not less than 1000 lbs. $2 a ton additional is charged, and less than 1000 lbs., $3 additional.

Tin Plate.—We note a continued active demand for Tin Plate, and it is said a number of consumers, being unable to get deliveries on contracts placed some time since, have recently come into the market and placed additional orders, paying a small premium in price for guaranteed delivery. We quote at $3.90 to $4 a box, f.o.b. Pittsburgh, for August and September delivery, but note that the price of the leading interest is $3.80 per box for Coke Plates, f.o.b. Pittsburgh.

Rods.—Two or three fair sized inquiries for Rods are in the market, and the general quotation for Bessemer is $36, f.o.b. Pittsburgh. It is possible that on a firm offer about $35.50 could be done. Open Hearth Rods are held at $36.50 to $37, Pittsburgh.

Skelp.—The market on Skelp continues very dull and we do not hear of any sales being made. Grooved Iron Skelp is held at about 1.90c., but on a firm offer 1.85c., or perhaps less, could be done. Sheared is held at 1.95c. to 2c., f.o.b. Pittsburgh.

Pipes and Tubes.—Within the past two weeks the Pipe mills have figured on contracts for fully 10,000 tons of Pipe from 4 to 8 inches in size, and a good deal of this tonnage has been placed. The mills that make Pipe 10 inches and larger are filled up practically for the balance of the year. Several large contracts for 10 and 12 inch Pipe placed some time ago are giving the mills a good deal of work, and a local interest is filling a contract for 20 miles of 16-inch Pipe, placed some little time ago by the Manufacturers' Light & Heat Company. Now that the building trades strike in New York and several other cities has practically been settled, it is believed this will create a larger demand for the smaller sizes of Pipe that are used for building purposes. Prices are firm, and we quote discounts to consumers in carloads as follows:

Merchant Pipe.

	Steel.		Wrought Iron.	
	Black.	Galv.	Black.	Galv.
	Per cent.	Per cent.	Per cent.	Per cent.
⅛, ¼ and ⅜ inch	68	58	65	55
½ inch	70	60	67	57
¾ to 6 inches	75	65	72	62
7 to 12 inches	69	59	66	56

Merchant Boiler Tubes.

	Steel.	Iron.
1 to 1½ inches	42½	39
1¾ to 2½ inches	55½	38
2¾ to 5 inches	61	48
6 to 13 inches	55½	38

We note, however, that some of the mills are naming lower discounts on Iron Pipe than are given above.

Old Material.—In sympathy with the Pig Iron market prices of Scrap have shown a further decline with very little Material moving. Consumers are disposed to go very slow in the matter of making purchases, owing to the uncertainty of prices. We quote Heavy Melting Stock at $20 in gross tons, and on a firm offer this would probably be shaded. No. 1 Railroad Wrought Scrap is $18 to $18.50 in net tons; Rerolling Steel Rails are about $21.50 in gross tons; Cast Scrap, $17.75 to $18.25 in gross tons; Iron Car Axles, $28.50 to $29, gross tons, and Steel Car Axles about $24.50, gross tons.

Coke.—The Coke market is somewhat demoralized, owing to the fact that a large number of new plants have recently been built in the Connellsville region and are actively seeking a market for their Coke and naming very low prices. Strictly Connellsville Furnace Coke is being offered as low as $2.50 a ton, but some sellers quote $3. Connellsville 72-hour Foundry Coke is being quoted at $3 to $3.25 a ton. Both Furnace and Foundry Coke made outside the Connellsville region are being offered at considerably lower prices than are quoted above.

Belgian Iron Market.

BRUSSELS, June 28, 1903.

The Belgium metallurgical industries, after having enjoyed a more cheerful period in the early months of the present year have again relapsed into dullness. The demand from the United States has dropped off seriously, and other export markets seem disposed to hold off more and more. Middlemen profit from this state of affairs to secure more and more favorable conditions for themselves and more and more ruinous conditions for the works. The majority of producers, however, find it impossible to reduce their selling prices, which are too low now in view of the conditions under which they are working. Raw materials are high, labor has been advanced, and yet the amount of work done is lessening during the hot period. Briefly, the situation is very bad, and the hope of reaching an early improvement in business is slight. Our rolling mill managers therefore begin to understand that they can only meet the present crisis by a closer union; therefore, there is talk among the manufacturers of an understanding subject to thorough control. Some of the mills advise that sales be left free in all lines of finished products, but that a group be formed to handle the purchase of raw materials, Coal, Coke, &c. Taking Coal alone, our consumption has been 21,084,000 tons out of a production of 22,768,000 tons in 1902. If all of the consumers of Coal unite and at regular intervals enter the market for large quantities, it is certain that they would bring about harmony between prevailing conditions and the requirements of consumers. Unless they obtain concessions in Belgium they could turn to foreign markets. Under such a system all the producing works could be placed on the same footing from the point of view of supplies, and thence a certain unity might be hoped for in the quotations of finished products; at the same time the fierce competition among themselves might be lessened.

Many works believe, however, in the creation of a common sales office similar to those operating in France. However, for a small country like Belgium, living almost exclusively on exports, and therefore subject to the slightest fluctuations in the international market, such a combination might not yield all the advantages to be expected. The glass manufacturers who had formed such a sales syndicate have been forced to dissolve it.

On June 15 there were in blast in the Charleroi district 13 out of 16 blast furnaces, 5 of them producing daily an aggregate of 417 tons of Forge Iron and 8 making daily 945 tons of Basic Pig. In the Liege district 1 furnace is making 90 tons daily of Forge Iron and 14 are producing daily 1591 tons of Basic Pig. In the Luxemburg district 2 furnaces, producing 280 tons per day, are on Mill Iron, while 3 furnaces are making daily 195 tons of Foundry Iron. Prices are 63 francs per metric ton on Luxemburg No. 3 Foundry, and 53 francs on Mill Iron, 58 francs on Charleroi Mill Iron and 63 francs on Thames Basic Pig.

Prices on Finished Iron and Steel are easy, at the following:

	Home market. Francs.	Export. £	s.	d.
Merchant Bars No. 2	130	5	0	0
Merchant Bars No. 3	135	5	5	0
Steel Bars	135	5	4	0
No. 2 Plates	140	5	8	0
Steel Plates	145	5	12	0
Beams	125	4	10	0
Heavy Rails	..	4	16	0
Light Rails	..	5	0	0

The 40 inspectors which Robert W. Hunt & Co. are employing in England and on the Continent are far from having finished their work.

The Belgian State railroads announced that they would need 70,000 to 80,000 tons of Rails, to be delivered over three to 4 years, but not desiring to pay more than 110 francs per ton, the order has been postponed. Cockerill has taken 33,000 tons of Rail for Siam, which is considered a triumph for Belgium, since English and German mills were competing sharply.

The New York Machinery Market.

NEW YORK, July 15, 1903.

While business is unmistakably very quiet at this time, the sentiments expressed by prominent machinery merchants clearly indicate that they believe that they have overrated the threatened "industrial depression." In the machine tool trade this sentiment is especially strong. The revival of business, which is so confidently looked for, is expected to take place early in the fall. Inquiries indicating extensive fall purchases continue to come in in increased numbers. The expressions of optimism are based on hopes of seeing this promised business materialize rather than on pure trust that something better will develop.

Many machinery merchants think that they were somewhat hasty in jumping at the conclusion that the near future held dire forbodings in store for them. They look back over their books now and find that the month of June, which was thought to mark the beginning of the end, was productive of more business than the corresponding period of last year. One prominent machine tool dealer showed the writer that in his case the increase amounted to 20 per cent., and last month's business consisted of the ordinary run of sales, being devoid of any individual orders of unusual size to swell the total. In looking over their order books they find that they are now doing as much business as they ever expect to in the month of July, and the inquiries which are being received daily foretell of a goodly amount of work that is in contemplation. Of course the danger feared is that some of the projects planned may not be carried out as soon as contemplated.

Although the trade are not so shortsighted as to look only at the orders on their books, regardless of the future, a good deal is to be heard about the pressure under which many shops are still working to make deliveries. One very prominent firm in the Middle West, who specialize in the production of a single line of machine tools, have an extraordinarily light stock on hand. As to standard tools of a popular size, they are as far behind as October. This concern have been taking orders to the amount of $20,000 beyond their productive capacity every month this year. It is argued that with a fair demand this fall the machine tool industry will be in a better position than it has been for a long time, as the summer lull will enable the shops to come up abreast with their orders and thus be placed on a better footing for taking up new business.

There have been no changes in prices during the week. Machine tool dealers in this market have fairly good sized stock orders for planers in, which they placed with the builders prior to July 1, when the 5 per cent. advance was made. Consequently the trade have not yet felt any effect of the raise. There is doubt expressed in some quarters as to whether the advance will be rigidly adhered to. The readjustment of prices on lathe attachments, extra lengths of beds, &c., has not been perfected as yet. It is thought that the necessary work in compiling these tabulations will consume about 60 days. There is no talk of further changes in prices. It is said that such things as concessions in the prices of boilers, engines and power plant accessories are not altogether unheard of these days.

A very interesting report that is making the rounds of the street has it that the Pennsylvania Railroad contemplate the construction of immense car and repair shops at Trenton, N. J. Nothing official can be learned at this time, but certain leading lights in the trade who keep closely in touch with the railroads claim that it is sought to construct a plant somewhat of the proportions of the Altoona plant. Doubtless based upon the fact that the Pennsylvania company have just torn away the Meadows, Jersey City, coaling station and other buildings at this point, it was stated that the entire Meadows shops are to be taken down and removed to Trenton when the contemplated shops are built. This is regarded improbable, however, as two fine new machine shops are now being erected at the Meadows station in connection with the present buildings, and while no machinery equipment has been ordered for installation in these new buildings, the company are not likely to abolish the Meadows shops just when they are being brought to an efficient state. It is generally believed in the trade that having successfully floated their new stock issue, the Pennsylvania Company will now proceed with the enormous purchases which they have been deferring lately, and that work on the numerous projects which they have in contemplation and under way will be pushed aggressively.

The latter also applies to the New York Central and other Vanderbilt lines, which have been holding up improvements for a similar cause, which is now also disposed of. In the instance of the New York Central, the work that will doubtless receive first attention is the West Albany car shops, the equipment of which has not yet been purchased, although the buildings were finished some time ago.

A subject for conjecture in the street is whether the New Jersey Central is also about to issue a lot of new stock, as it is understood that an edict has gone forth to retrench on all purchases

Some pretty good orders were placed during the week by the Big Four, Pennsylvania, Lake Shore and Baltimore & Ohio roads. The purchases were made on single requisitions and not by lots. Cramps of Philadelphia have also been in the market.

The International Steam Pump Company are now being followed very closely. It is expected that the list of specifications for the machinery equipment to be installed in the new plant at Harrison, N. J., will soon be ready. There was a meeting of the superintendents of the various plants of the company in New York during the last week. Machinery men are inclined to interpret this as a consultation preparatory to issuing the machinery list, which will be the largest one issued by an Eastern shop in a long time, if not larger than any ever sent out from the Atlantic seaboard. The work on the buildings is making excellent progress, the steel structure of the monster main machine shop being nearly completed. The foundations of the other buildings are all down and the structural steel is on the ground ready for erection. At the offices of the company's purchasing department it is said that the equipment will be bought early in the fall.

Plans for the organization of the Canadian Westinghouse Company have matured sufficiently to permit of the incorporation of the company under the laws of the Dominion of Canada. George Westinghouse, Pittsburgh; Henry Herman Westinghouse, New York; George Carson Smith, Frank Hendrickson, Loyall Allen Osborne, Pittsburgh; Thomas Ahearn and Warren Young, Ottawa, and Paul Judson Myler, Hamilton, are the incorporators. The company propose to build a general electrical plant in Hamilton, Ontario, which will be large enough to care for their Canadian business, which at the present time is supplied from the Pittsburgh plants. The officials of the company announce that the new plant will be a model one, and will be so arranged that it can be enlarged as the occasion demands.

As a result of the merger of the Ramapo Iron Company of Hilburn, N. Y., and the MacPherson Switch & Frog Company of Niagara Falls, the plant at the latter place is to be substantially enlarged. Four large new buildings will be immediately erected. One of these will be 65 x 270 feet, another 75 x 270 feet, the third 45 x 300 feet, and the fourth will be an office building 30 x 40 feet. The plant of the MacPherson Switch & Frog Company is located on the lands of the Niagara Falls Power Company, and enough land is under lease to allow the company to double the capacity of the enlarged plant. The capitalization of the Ramapo Iron Works is $1,400,000. The company have decided that Niagara Falls has unusual facilities for manufacturing as well as for shipping, and for this reason the Niagara plant is to be greatly enlarged. Sixteen planers will be installed, and as these will be run night and day they will be equal to 32 machines. It is expected that the new Niagara plant will employ over 300 hands.

The Heisler Mfg. Company of St. Marys, Ohio, a new corporation, with a capital stock of $125,000, contemplate the construction of a large plant for the production of pumping machinery. Later on it is expected to extend the plant so as to permit the building of blowing engines and air compressors. Plans for the work are now being prepared by Charles L. Heisler of 714 Westinghouse Building, Pittsburgh, Pa., who is the company's chief engineer. Mr. Heisler is also the patentee of the high duty pumping engines which the company will produce, and which are said to be of novel construction, containing advanced features overcoming the use of the fly wheel. The new works will be equipped at once for the building of high duty pumping engines, ranging in capacity from 500,000 to 20,000,000 gallons each. A number of these pumps have been built on contract and are now in constant use. The officers of the company are as follows: President, L. Neely, St. Marys, Ohio; vice-president, A. Horzing, St. Marys, Ohio; secretary, Mr. Victor, St. Marys, Ohio; treasurer, A. C. Buehler, St. Marys, Ohio.

The Brooks Works of the American Locomotive Company, at Dunkirk, N. Y., have commenced the erection of a new wheel house on the site of the old storeroom, bolt room and wheel yard. The D. G. Henry Company of Buffalo have the contract for the iron construction work, which will be completed August 1, and by October 1 the entire building will be in readiness for occupancy. The estimated cost of the building is $50,000, and when equipped with machinery for the handling of wheels its cost will figure close to $200,000. Within two years buildings aggregating $1,200,000 in cost have been erected at the Brooks plant.

The Toledo & Ohio Central Railway Company of Columbus, Ohio, who are building a new planing mill and enlarging their machine shops at Bucyrus and Kenton, Ohio, have just purchased a fair sized equipment. The new planing mill will be 80 x 206 feet, and the machine shop will be enlarged by the removal of the wood working machinery, which at present occupies a portion of it, to the new planing mill. S. S. Stiffey, superintendent of motive power, with offices at Columbus, Ohio, is in charge of the work. The machinery purchased includes the following: Three No. 3 screw machines, with complete tool equipment and carriage, capacity ⅝ to 1½ inches, purchased of the Niles Tool Works

Company; two No. 2 double axle lathes, length of bed 11 feet 3 inches, distance between centers 7 feet 8 inches, for locomotive and car axles, purchased from the Niles Tool Works Company; one No. 2½ horizontal boring and drilling machine, 60-inch swing, purchased from the Niles Tool Works Company; one No. 6 hydrostatic wheel press, taking wheels 78 inches in diameter on the tread, distance between tie bars 84 inches, capacity 300 tons, purchased from the Niles Tool Works Company; one 32-inch vertical drilling machine, purchased from the Niles-Bement-Pond Company; one 26 x 26 inch planer, 6-foot bed, purchased from the Niles Tool Works Company; one Acme No. 1½ Universal milling machine, with automatic longitudinal, cross and vertical feeds, purchased from the Niles Tool Works Company; one No. 8 pipe threading and cutting machine, for threading 1 to 6 inch pipe, purchased from the Columbus Machine Company; one steel tired car wheel lathe, 48-inch swing, turning wheels up to 42 inches in diameter, purchased from the Niles Tool Works Company; one 20-inch swing 8-foot bed Lodge & Shipley improved engine lathe, to take 4 feet 5 inches between centers, with back gears, hollow spindle, screw feed, friction feed, power cross feed, reverse feed in apron, compound steady and follower rests, large and small face plates, double friction countershaft, taper attachment and quick change screw cutting and feeding mechanism, purchased from the Marshall & Huschart Machinery Company, Cleveland, Ohio; two 24-inch swing engine lathes, 8-foot beds, with taper attachment, purchased from the Niles Tool Works Company; one No. 2 seven-spindle Durrell improved nut tapper, purchased from Howard Bros.; one 7½ x 5 x 6 Worthington duplex pump, brass fitted, purchased from the National Supply Company; two improved Ajax 2½-inch forging and bolt heading machines, with lock motion, safety device, shear attachment and moving stock gauge, purchased from the Ajax Mfg. Company; three 125 horse-power square box boilers, to be purchased from the Marine Boiler Works; two Chaney oil flue furnaces, purchased from Ambrose Chaney, Terre Haute, Ind.; two flue welding machines, purchased from the Hocking Valley Railway; two bolt heating furnaces, purchased from the Hocking Valley Railway; one heavy band saw, with 40-inch wheels having endless wood rims, with steel spokes, purchased from the S. A. Woods Machine Company; one heavy automatic railway cut off saw machine, complete, purchased from the Niles Tool Works Company; one improved iron frame rip saw machine, purchased from the Niles Tool Works Company; one three-spindle boring machine, purchased from the S. A. Woods Machine Company; one vertical hollow chisel mortiser, with attachments, &c., purchased from Greenlee Bros. & Co.; one No. 30 band saw filing and setting machine, purchased from the S. A. Woods Machine Company.

The American Tap & Die Company, Greenfield, Mass., are about to begin on an extensive addition to their plant. Work will be pushed as rapidly as possible, and the working force will be doubled as soon as the new building is ready for occupancy.

The Chambersburg Engineering Company, Chambersburg, Pa., have purchased a good sized tract of land adjacent to their plant upon which they intend to erect a large foundry. On account of the increased business their present foundry is inadequate to supply the large castings required.

Complete power house equipment, including two 225-kw. generators with compound condensing engines of sufficient size to operate them, boilers, &c., and motors for the rolling stock, of which there will be eight 40-foot cars with four motors on each, is required by the Railway Construction Company of America, with offices in the Exchange Building, Boston. This concern have the contract for the construction and equipment of the Easton & Belvidere Street Railway, which is being financed by W. S. Reed of Boston and Easton, Pa., capitalists. The construction embraces a power station, 48 x 120 feet, with brick stack, and a car house, 50 x 200 feet, of brick and iron. The road to be built this year is about 18 miles, single track with turnouts, for which the rails, ties, &c., have been purchased. No contracts for buildings or machinery have as yet been placed.

F. S. Pearson, consulting engineer, of 29 Broadway, New York, is purchasing the equipment for the Mexican Light & Power Company, Limited, who are developing a very large water power at Necaxa, Mexico, about 90 miles from Mexico City, to which place the power is to be transmitted The contracts now being placed are for the initial installation aggregating 40,000 horse-power and include six impulse water wheels, generators, 1800 tons of steel riveted pipe and accessories. As soon as this first installation is in operation, a duplicate amount of machinery will be purchased, making the ultimate capacity of the plant 80,000 horse-power.

Specifications are being prepared by Jerome O. Gedney, chairman of the Water Commission of East Orange, N. J., for two 4,000,000-gallon pumping engines and other water works accessories. A municipal water supply system is being installed by the town of East Orange, and while the sinking of wells, &c, is well under way, no purchases have been made as yet for mechanical equipment. Contracts will also be let shortly for 10 miles of 24-inch water mains.

M. H. Treadwell & Co., 95 Liberty street, have secured an order from the International Harvester Company of Chicago for three large cinder cars, and have just secured another order from the American Steel & Wire Company for two large cinder cars, to be used at the latter concern's central furnace at Cleveland, Ohio.

Practically all of the equipment for the Marksboro Portland Cement Company of Marksboro, N. J., was purchased during the last week. The plant will have a capacity of 800 barrels per day. The engines, which aggregate 750 horse-power, were purchased from the Watts-Campbell Company of Newark, N. J., and the boilers, which will be of the Franklin water tube type, were secured from the Washington Company of 39-41 Cortlandt street. The grinding machinery was purchased from the Gates branch of the Allis-Chalmers Company and the Ruggles-Coles Engineering Company of 39-41 Cortlandt street will supply the dryers. Contracts for the power transmission machinery have not been awarded.

Reeves Pulley Company, Columbus, Ind., have arranged two new sales agencies for "the Reeves" wood split pulley. They are the Niles-Bement-Pond Company of Boston, for the New England territory, and the newly organized American Frog & Mfg. Company of Kansas City, Mo., for Kansas City and tributary territory. For both of these points large and well assorted stocks are now in transit, and both enter the line with every evidence of a large pulley trade.

The Newburgh Steam Boiler Works have moved their New York office from 10 Barclay street to 95 Liberty street. Carlisle Mason is the New York sales manager.

New York.

NEW YORK, July 15, 1903.

Pig Iron.—The market has been very quiet, no orders of any consequence having been placed. Buyers persist in a waiting attitude. Prices are somewhat irregular and are difficult to quote, in the absence of any large business. We quote for delivery at New York and tidewater: Northern No. 2 Foundry, $17.75 to $18.25; No. 2 Plain, $17.25 to $17.75, and Gray Forge, $16.75 to $17.25. Tennessee and Alabama brands: No. 1, $17.75 to $18.25; No. 2, $17.50 to $17.50, and No. 3 Foundry, $17 to $17.50.

Steel Rails.—Sales for early delivery are on a moderate scale, but it is usually possible to secure fairly prompt shipment. The announcement is made that the Clark road has purchased 10,000 tons of German Rails for the Pacific Coast delivery at $36, ex-ship, duty paid. This business was done some weeks since, however. On the other hand, the report is current that a Canadian order for about 25,000 tons has gone to an American mill. We continue to quote $28 for Standard Sections, at Eastern mill.

Finished Iron and Steel.—The market continues very quiet, and no large contracts have been recently placed for Structural Material. Bar Iron manufacturers complain of absence of business. We quote, at tidewater, as follows: Beams, Channels and Zees, 1.75c. to 2c.; Angles, 1.75c. to 2c.; Tees, 1.80c. to 2c.; Bulb Angles and Deck Beams, 1.90c. to 2.25c. Sheared Steel Plates, in carload lots, are 1.78c. to 2c. for Tank, 2c. to 2.10c. for Flange, 2.10c. to 2.20c. for Marine and 2.25c. upward for Fire Box. Refined Bars are 1.75c. to 1.90c.; Soft Steel Bars, 1.75c. to 1.90c.

Old Material.—The market is lifeless, buyers refusing to take the slightest interest in it. While the mills are taking nothing, offerings by the railroads are growing relatively very heavy. One trunk line has sent out a list of 9000 tons of Old Steel Rails, and there are considerable blocks of No. 1 Railroad Wrought being offered. Two lines are endeavoring to dispose of an aggregate of 15,000 tons of Relayers. Quotations, under the circumstances, are largely nominal. We name New York and vicinity, per gross ton:

Old Iron Rails	$20.00 to $21.00
Old Steel Rails, long lengths	19.00 to 20.00
Old Steel Rails, short lengths	16.00 to 17.00
Relaying Rails,, heavy sections	24.00 to 25.00
Old Car Wheels	17.00 to 18.00
Old Iron Axles	25.00 to 26.00
Old Steel Car Axles	23.00 to 24.00
Heavy Melting Scrap	16.00 to 17.00
No. 1 Railroad Wrought Iron	18.00 to 19.00
Iron Track Scrap	17.00 to 18.00
Wrought Pipe	13.00 to 14.00
Ordinary Light Iron	9.00 to 10.00
Stove Plate	11.00 to 12.00
Cast Borings	7.00 to 8.00
Wrought Turnings	12.50 to 13.00
No. 1 Machinery Cast	16.00 to 17.00

During the last three calendar years there were imported the following quantities of special pig irons, in gross tons:

	1900.	1901.	1902.
Ferromanganese	8,122	20,751	40,386
Spiegeleisen	14,184	26,827	62,813
Ferrosilicon	2,165	822	15,945

The production of spiegeleisen in the United States was 231,822 tons in 1901 and 168,408 tons in 1902. The output of ferromanganese declined from 59,639 tons in 1901 to 44,573 tons in 1902.

Metal Market.

NEW YORK, July 15, 1903.

Pig Tin.—With the exception of a little flurry on Friday and Monday last, when prices advanced slightly, the market has shown a steady decline throughout the week. At the close to-day the range of prices is considerably lower than last week, spot and July being quoted 26.90c. to 27.15c., while August ranges from 26.75c. to 27c., and September, 26.55c. to 26.80c. In the upward move last Monday spot reached 27.62½c. The closing price to-day is the lowest figure touched this week. The London market has also declined rather sharply, spot being quoted £123 and futures £120 15s. It will be noted that spot declined 17 shillings 6 pence since last week. Business was fair until Monday, when the higher prices caused a cessation of purchasing, the result of which has been the reaction and continued downward trend of prices. The arrivals thus far this month amount to 1260 tons, while the afloats are figured at 2045 tons.

Copper.—The makers of the "official" prices have again been forced by the absence of business to reduce prices. They cut their figures twice during the week under review, the first reduction being made on Friday last and the second to-day. The "official" prices at this writing are as follows: Lake and Electrolytic, 13.62½c. to 13.75c., and Casting, 13.25c. to 13.37½c. Outside prices run about ⅛c. below these. The lower prices have had no effect in stimulating business. The London market also declined, closing prices to-day being as follows: Spot, £56 10s.; futures, £56; Best Selected, £61 10s. The exports so far this month foot up to 2924 tons, as against 4856 tons for the corresponding period of last year.

Pig Lead.—Conditions are unchanged, and the market is dull and uninteresting. The American Smelting & Refining Company still quote on a basis of 4.12½c. for Desilverized in carload lots and 4.10c. for 50-ton lots. London has advanced a shade to £11 8s. 9d.

Spelter.—There is still a scarcity of spot here and the price has advanced a shade. At the close to-day it was quoted 6c. to 6⅛c. St. Louis is also said to have advanced a fraction to 5.60c., and the London market closed to-day £20 15s., which is 2 shillings 6 pence lower than last week.

Antimony.—Hallett's has suffered another decline, being quoted 6.50c. to-day. Cookson's is unchanged at 7.50c., and other brands are quoted 6.25c. The market is weak.

Nickel—Is quoted at 40c. to 45c. for large quantities and 50c. to 60c. in small lots.

Quicksilver.—A moderate business is reported, the market ruling at $47.50 for flasks of 76½ lbs.

Tin Plate.—No change worthy of note has occurred in this market. Current transactions are of moderate proportions. Prices remain firm. The American Tin Plate Company's quotation continues at $3.80 per box of 14 x 20 100-lb. Cokes, f.o.b. mill, which is equivalent to $3.99, New York. Swansea declined 1½ pence to 11 shillings 4½ pence.

Change in Ownership of the Clairton Steel Company.

(*By Telegraph.*)

PITTSBURGH, PA., July 15, 1903.—At Pittsburgh on Tuesday, July 14, papers were signed by which ownership of the Clairton Steel Company, operating blast furnaces and open hearth steel works at Clairton, was vested in new hands, the United States Steel Corporation securing a half interest, the Oliver & Snyder Steel Company, composed of Henry W. Oliver and W. P. Snyder, a one-fourth interest, the other fourth remaining with the Crucible Steel Company of America. In January last negotiations were opened by which the United States Steel Corporation desired to take over the entire interests of the Clairton Steel Company, and in return it was proposed to make a favorable contract with the Crucible Steel Company for their supply of Bessemer and open hearth steel billets. Some of the stockholders of the Crucible Steel Company were opposed to allowing the entire control of the Clairton Steel Company to pass out of their hands, and as a result nothing came of this deal, although it has been under way at different times for more than six months. About a month ago the negotiations were taken up again on a different basis by Henry C. Frick, representing the United States Steel Corporation and Henry W. Oliver and W. P. Snyder, representing the Crucible Steel Company. A number of conferences were held in New York and Pittsburgh, with the result that the deal has been closed on the basis given above. The sale is virtually a partnership of the United States Steel Corporation, the Oliver & Snyder Steel Company and the Crucible Steel Company. The United States Steel Corporation will pay into the treasury of the Crucible Steel Company $4,000,000 in cash for a half interest in the Clairton Steel Company, the Oliver & Snyder Steel Company pays $2,000,000 to the Crucible Steel Company for a one-fourth interest, the other fourth interest remaining with the Crucible Steel Company. Under this arrangement the United States Steel Corporation will secure 50 per cent. of the product of the open hearth plant at Clairton, the Crucible Steel Company will secure one-fourth and the Oliver & Snyder Steel Company one-fourth, a portion of the latter's product going to the Oliver Iron & Steel Company of Pittsburgh. The prices to be paid for the open hearth billets will be uniform to all of the above interests.

The Clairton Steel Company were organized more than a year ago, being a consolidation of the interests of the St. Clair furnace and the St. Clair Steel Company. The deal just made involves the entire properties of the Clairton Steel Company, including ore, coal, limestone and natural gas properties. In ore properties the Clairton Steel Company own some very valuable mines, among these being the Champion and Clairton mines, and it is estimated that the Clairton Steel Company had 20,000,000 tons of ore in sight. The company also owned 2700 acres of valuable coal land in the Connellsville region, large gas properties in Washington and Jefferson counties, Pa.; the quarries of the St. Clair Limestone Company, at Franklin Forge, near Altoona, Pa., and 55 per cent. of the St. Clair Terminal Railroad, including the bridge across the Monongahela River at Clairton. The Clairton Steel Company also owned 220 individual cars and seven locomotives. The above embrace all the raw material owned by the Clairton Steel Company, while at Clairton the company have two blast furnaces finished and in operation. No. 3 stack is nearly completed, and would have been in operation before this had it not been for the boiler makers' strike. No. 3 furnace is a duplicate of the other two, and will be put in blast in August or September at the latest. The furnaces are equipped with a 300-ton metal mixer. The steel works are equipped with twelve 50-ton basic open hearth furnaces, a 40-inch blooming mill and a 28-inch billet mill. The output of the steel plant is about 1500 tons a day when all the furnaces are in operation.

W. P. Snyder will continue as president of the Clairton Steel Company and George L. Brown as secretary. Some changes will likely be made among other officials. It is understood that the principal reason for making this deal was that the product of the Clairton Steel Company, being open hearth steel entirely, was not well adapted to the needs of the Crucible Steel Company. It is understood that the Crucible Steel Company will continue to secure their supply of Bessemer billets from the Carnegie Steel Company under a very favorable sliding scale contract.

Plans had been made by the Clairton Steel Company for the building of a Bessemer steel works and also finishing mills for rolling rails, sheet and tin bars, as well as plates and structural material. In view of the sale just made it is probable that these plans will be held in abeyance for a time at least. The deal becomes effective from July 14, on which date the papers were signed.

The Youngstown Iron Sheet & Tube Company.—All departments of the large plant of the Youngstown Iron Sheet & Tube Company, at Youngstown, Ohio, are now in full operation and the works are turning out a larger product than was contemplated when the plant was built. The output of this plant consists of skelp iron and steel pipe up to 8 inches in diameter, black or galvanized, and pure iron sheets made from rerolled muck bar, which is puddled from pure pig iron. A meeting of the stockholders of the Youngstown Iron Sheet & Tube Company will be held in Youngstown on July 27, at which it is probable a new president will be elected to succeed George D. Wyck, who resigned some time since and who is now located in New York.

A. L. Humphreys, formerly superintendent of motive power of the Chicago & Alton Railroad, has resigned and will enter into service with the Westinghouse Air Brake Company at Pittsburgh.

Iron and Industrial Stocks.

The week under review brought some surprises in industrial stocks, quotations falling in some instances below previous records. The market had a series of shocks, through heavy liquidation in which many investment stocks were the leaders. United States Steel common touched 27⅝ on Tuesday, while the preferred reached 78 on the same day. Reports are current that Rockefeller interests, having unsuccessfully advised an early reduction in the dividend rate, are selling stock, a report to which color was given by the appearance of certificates bearing the name of the private secretary of John D. Rockefeller. It is stated, however, that there is no truth in these reports, and that the stock being sold is collateral of a loan which has been closed out. Some low figures were also made during the week in Republic, Tennessee and Sloss-Sheffield issues.

Tennessee Coal & Iron Company.—The May statement of the Tennessee Coal, Iron & Railroad Company is as follows:

	May.	Five months.
Net	$440,668	$1,746,238
Other income	1,576	9,544
Charges	67,044	322,298
Depreciation	41,706	195,180
Dividend on preferred	1,655	8,277
Surplus	331,839	1,219,027

The Tennessee Coal & Iron Company's $3,000,000 5 per cent. mortgage bonds just listed on the New York Stock Exchange are part of $15,000,000 authorized bearing date of July 1, 1901, becoming due July 1, 1951. Of the total amount authorized $10,654,000 are to redeem existing funded debt outstanding on December 31, 1900, and $4,346,000 are to reimburse the company's treasury for money paid out of earnings for permanent additions to property and for other permanent improvements that may become necessary from time to time.

The Union Iron & Steel Company.—The following financial statement as of June 1 has been issued by Thomas S. Holmes, treasurer:

Assets.

Plant investment, including furnaces, mines, real estate, &c.	$2,000,000.00	
Cash	45,336.03	
Bills, accounts receivable, ore, pig iron and all other items	365,260.03	
		$2,410,596.06

Liabilities.

Capital stock (noncumulative)	$2,000,000.00	
Accounts and bills payable	107,652.84	
Surplus	302,943.22	
		$2,410,596.06

In consolidating the constituent companies and business under the name of Union Iron & Steel Company as of January 1, 1903, nothing but absolutely good assets were considered. The plants and real estate are free from mortgage or bonded debts, and the company have no fixed charges. The annual business approximates $2,000,000. The directors are: William Rotch, Boston, Mass.; E. K. Stallo, New York City; E. L. Harper, New York City; Thomas S. Holmes, New York City; William H. Binnian, Peoria, Ill.; E. L. Harper, Jr., Big Stone Gap, Va.

Stockholders of the Standard Steel Car Company of Pittsburgh met in that city last week, and authorized the directors to increase the capital stock and bonded indebtedness to whatever amount will be necessary to make several enlargements to the plant.

Dividends.—Tennessee Coal, Iron & Railroad Company have declared the regular quarterly dividend of 2 per cent. on the preferred stock, payable August 1. Books close July 20 and reopen August 3.

The Ruud Mfg. Company of Pittsburgh, manufacturers of hot water heaters, have declared a semiannual dividend of 4 per cent.

Allis-Chalmers Company have declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable August 1. Books close July 25 and reopen August 3.

Additional Signers of Amalgamated Scale.—In addition to the list of concerns given in our issue of last week as having signed the Amalgamated scale, the following named concerns have also signed; Eagle Horseshoe Company, South Milwaukee, Wis.; the Muskingum Valley Steel Company, Zanesville, Ohio; the American Rolling Mill Company, Middletown, Ohio; Empire Rolling Mill Company, Cleveland, Ohio; Emlyn Iron Works, East Chicago, Ind.; Republic Iron Works, Pittsburgh, Pa.; Westerman & Co., Lockport, N. Y.; the Empire Iron & Steel Company, Niles, Ohio; the McClure Company, Washington, Pa.; the Ohio Rolling Mill Company, Findlay, Ohio; Tennessee Coal, Iron & Railroad Company, Bessemer, Ala.; the Weller Rolling Mill & Forge Company, Anniston, Ala.; the Youngstown Iron Sheet & Tube Company, Youngstown, Ohio; the Ewald Iron Company, Louisville, Ky.

A new lodge of the Amalgamated Association has been organized among the sheet mill employees of Neal Brothers at Pittsburgh. The new lodge is known as Try Me Lodge No. 37, Pa.

Labor News.

After a strike lasting about two weeks the boiler makers employed by the Titusville Iron Company, Titusville, Pa., have returned to work on terms of the company. Before being given employment each employee was required to sign an application prepared by the concern, and which reads as follows:

"The Titusville Iron Company, whose capital is constantly at risk in the prosecution of its business, reserves to itself the right to select such persons as its employees who, in its estimation, will be best adapted to assist in the positions for which they are selected. It further reserves the right, at any time, to dispense with the services of such as, for any reason, are not desirable or necessary employees. The company has no desire, and makes no attempt, to control its employees in their connection with religious, political or other organizations, and it is hereby faithfully agreed on the part of the undersigned that, if hired, he will not, while in its employ, in any manner attempt to induce the company, or any of its employees, to be governed or affected by the principles of any religious, political or other association, if such principles would have any effect upon the business of the company."

The report that the Lewis Foundry & Machine Company of Pittsburgh, manufacturers of sand and chilled rolls and iron and steel rolling mill machinery, had made a settlement with their machinists by giving a 5 per cent. advance in wages, to date from July 1, is incorrect. This company will be governed by the settlement made by the Manufacturers' Association at Pittsburgh last week with their machinists, by which the men have been granted an advance of 7½ per cent. in wages.

The strike of the Providence (R. I.) molders, which was inaugurated in September, 1902, has been formally declared off. The strike was virtually ended months ago, the places of the strikers having been filled. However, a few of the men have been taken back at the Miller Iron Foundry and the Franklin Foundry. The Carpenter Foundry has employed none of the strikers because every place had been filled.

The New York Building Trades.

Settlement of the labor troubles which have held up building operations in New York City has been prevented by the strenuous efforts of the walking delegates, led by Sam Parks, the "business agent" of the Housesmiths' and Bridgemen's Union, against whom bribery charges were recently preferred. The Parks faction of the Board of Building Trades have caused an open revolt among the various unions in the building trades by expelling four of the unions whose members returned to work under the agreement of last week. There is now a movement afoot to organize another board composed of the skilled unions who do not approve of the Parks tactics practiced by the Board of Building Trades.

The Employers' Association have decided to hold a meeting and fix a time limit when work must be resumed generally throughout the city under the agreement of last week.

If the unions do not return to work by the date set the fight will begin anew. As a great many of the individuals who belong to the unions are in favor of returning to work almost at any cost, it is thought that the contemplated move of the Employeers' Association will cause internal disruption in the unions.

The four unions which have been expelled from the Board of Building Trades are the Mosaic and Encaustic Tile Layers' Union, the Hexagon Labor Club of Tile Layers' Helpers, the Electrical Workers' Union, and the Cement Masons' Union.

The Plasterers' Union have also laid themselves open to expulsion from the walking delegates' board by indorsing and signing the agreement of the Employers' Association. It is expected that the Bricklayers' Union on one side and the Master Builders' Association on the other will also accept the agreement of the Employers' Association.

HARDWARE.

THE manner in which for years the products of manufacturers have been imitated by other manufacturers is familiar to the trade, and the extent to which the practice has been carried is generally regretted. In this way the results of ingenuity and invention, when not covered by patents, and of enterprise and push in devising goods for the market have been utilized by competitors. This has often been done without violation of trade-mark or patent rights, and simply by close imitation of the special features of construction and the appearance of the articles in question. Without interfering with the recognized privilege of one manufacturer to learn from another, and within certain lines to follow the variety and even the style of goods put upon the market, it is only proper that there should be limits placed by law which shall protect manufacturers from undue encroachment in territory which they have in a sense appropriated by their skill, invention and energy in the industrial and commercial field.

A decision bearing upon this question has recently been rendered in a suit between two prominent Hardware manufacturers which has been before the courts for several years. In view of the importance of the subject and the interest of the conclusion reached the decision is printed in full in another column. The case in question did not come under the trade-mark law, though referred to by the judge as coming perilously near it; nor was there any infringement of patent rights. The facts were that the plaintiffs many years ago put upon the market a line of Coffee Mills, which were characterized by a certain general style and appearance which differentiated them from other Mills and gave them a recognized and distinctive position in the market as the manufacturer's product. The defendants after a large sale had been established for these goods, which were generally known to the trade and to the consuming public, put on the market a line of Mills of identical design and color, differing only in the substitution of the manufacturer's name and the use of numbers to designate the various sizes which but slightly differed from those on the well-known goods. The goods complained of were therefore practically identical in style and appearance with those of the plaintiffs, so much so that the public frequently mistook them for the original and well-known line. These facts were frankly admitted by the defendant, to whose evident sincerity the learned judge referred. The defense in the case was that the defendant had a perfect right to do this, and that his action in making the goods was proper and defensible. That this position should have been taken is not surprising, in view of the extent to which the imitation of the products of manufacturers has been practiced with impunity.

The tendency of the law has been more and more to protect the rights of manufacturers to the results of their invention and enterprise, so far as this can be done without interfering with the freedom of competition and trade. In this case, in accordance with the principles of law which according to the learned judge prevail, an injunction was granted to the plaintiff preventing the defendant from marketing "any Mill which by reason of its shape, design or arrangement of color and number shall so resemble the Coffee Mills of the plaintiff as to be likely to create a misapprehension in the minds of the purchasing public of average intelligence, and to tend to lead the ordinary consumer to mistake the Mills of the defendant for the Mills of the plaintiff." This decision, of which the trade will probably learn with something of surprise, presents some interesting questions. It remains, however, to be seen whether it will be sustained on appeal, as it is sure to be carried to a higher court.

Condition of Trade.

There appears to be developing in the trade a confident feeling that fall business is to be of good volume, as a result of at least fair crops and the prevalence of general prosperity throughout the country as a whole. Coupled with this there is, however, a disposition not to buy goods in excess of sure requirements. There is, accordingly, practically nothing of speculative purchasing, and the desire of jobbers and larger retail merchants is to keep stocks down to good, but not heavy, working assortments. Prices are, as a rule, quite steady, and manufacturers, though getting their order books cleared up, are generally refusing to make concessions. Indeed, in most lines this cannot well be done, as the labor costs are still creeping up. Taken all in all, the prevalent feeling is that the business of the next few months will be of excellent volume unless some unforeseen influences disturb the market.

Chicago.

(*By Telegraph.*)

In nearly all lines of Hardware buying is at ebb tide, as usual at this season of the year, but still mills note the reception of a number of orders from the manufacturing trade for Springs, Weaving Wire, Piano Wire and various specialties. The orders coming from the jobbing trade, however, are still light—that is, as far as Nails and wire are concerned, but manufacturers' agents report the assigning of some important contracts for Shelf Hardware and Tools on jobbers' account for fall delivery. The trade in Heavy Hardware has been without animation, but merchants report business fully equal in volume to what it was at this season a year ago. This includes Bars and Structural Shapes, Bolts, Nuts, Screws, Rivets, Washers, Chain, Shafting, Hangers and similar goods. Manufacturers' agents for Builders' Hardware report a fair number of small contracts received from the surrounding territory, but the city trade has been very light and without new features of interest. Jobbers are contracting to a moderate extent for a few staple lines, and a number of specialties for next season, but as a rule this business has not yet opened. Mail orders from the country are of about the usual volume at this season, and some purchasing is being done by country merchants, who are taking advantage of excursion rates incidental to the vacation season. Harvesting is now well advanced, and with the exception of rush orders, to assist in these operations, the farmer is but a small factor in the market at the moment. Latest advices upon the crops indicate more than an average yield of the principal grains, and although the corn crop will be less than a year ago, from present indications it will be considerably above the average for the last ten years, the most recent Government statistics indicating a crop of 2,230,000,000 bushels. Government reports also indicate a crop of winter and spring wheat, but little under 700,000,000 bushels. Private advices from the Northwest continue extremely favorable, and the Hardware trade bases its estimate for a full and profitable fall trade upon these reports. One of the most conspicuous features of the Hardware trade is the continuous broadening of business and the carrying of side lines by both jobbers and retailers, and each year the buying of such goods becomes a more important factor in the trade. It is important to note that there is a general feeling, both among manufacturers and jobbers, that prices of most manufactured articles should decline in response to the drop in prices of raw material, such as Pig Iron, Iron Bars, Zinc, Lead and copper. Hence, there is a natural tendency to hold off placing orders in antici-

pation of a decline, for it is almost certain that there will not be an advance, even if prices are not lowered, and they see nothing to be gained by early purchasing of manufactured goods. This, however, refers more to heavy lines than to articles in which the labor costs enter most largely into calculations.

St. Paul.

FARWELL, OZMUN, KIRK & CO.—The figures for the first half of the year have been before the heads of houses and departments and the results have had large consideration, as have also the present situation and the prospects for the coming six months. The final balance sheets will largely depend on the outcome of some of the great crops of the country—corn, cotton and spring wheat. More than two months will be required to determine satisfactorily the condition of the first two, and not much less time will answer for the last one. The Northwest has been steadily growing away from entire dependence on the wheat crop, but still for the wherewith to pay the great bills of the fall wheat is the largest factor, and a short crop of it means a great deal to the merchants as well as the farmers.

At this writing the prospects are for a fair harvest of wheat and also of oats, barley and flax, none of them a bumper crop, and in some sections a light crop, though nowhere a failure. It is now expected that throughout the whole territory fall trade will be fairly good.

The business of the first half of the year has reached the expectations of the early spring, although with the exception of one or two months the showings have been behind those of last year, month by month. But we realize as we come further away from 1902 that it was a very fine year and stands third, if not second, in rank among the last 20 years. If the results of this year can reach anywhere near those of 1902 our houses of the Northwest will feel that they have reason to congratulate themselves on their good fortune.

If there be no large changes in trade conditions the reasonable anticipations of the year will have been realized. To do this fairly steady prices on Hardware generally will be necessary. The probability is now strong that this will be true. There now seems to be no necessity for declining markets this year. There are probably a few articles that are somewhat above normal values, but it is also probable that it will require time to adjust these, and it is certainly true that in most lines of Hardware it would not seem probable for a considerable time to come for goods to be manufactured at lower cost than they now are.

The demand for goods is strong, and were it somewhat less a small reduction in price would give no permanent relief. A steady market for the balance of the year, with little fluctuation either way, is greatly to be desired.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—This is the season for vacations, when a great rush of business is not expected. We are glad to report, however, that business is better than usual at this season of the year. The corn, cotton and other crops are not as far advanced at this time as they usually are, but the prospects of good crops up to this time are excellent. The prospects are certainly very much more favorable than they were at this time last year.

The threatened strike of the miners in the Birmingham district is affecting business to some extent throughout the Southern country. The result of this fight between the miners and the mills with the labor organizations may or may not affect materially prices of goods handled by the Hardware trade. The Birmingham district, which is usually such an active place, cannot drop quietly out of the commercial race, even for a short time, without its absence being felt. We notice from report of the Commercial Club, at Birmingham, some figures that it would be well for any one to consider who is in doubt about the prosperity of the South. Bank clearings in Birmingham in 1897 were $20,907,495; 1898, $23,777,899; 1899, $34,469,751; 1900, $43,980,448; 1901, $48,029,007; 1902, $56,781,048. There were on deposit in Birmingham banks May 1, 1901, $7,600,204; May 1, 1902, $9,251,820; May 1, 1903, $11,475,454. There were built in the Birmingham district, Jefferson County, Ala., in 1902 2250 houses.

We sincerely trust that the wheels of commerce may again be started in this important section in a few days.

Cleveland.

THE W. BINGHAM COMPANY.—As the vacation season is at hand and many salesmen are off duty, business through that source is just a little slack. However, there seems to be a good, steady trade with the country merchants, and they are sending in good sized and well assorted mail orders.

There is a lot of inquiry and buying of building material—that is, house trimmings and the like—to close up contracts on houses started early in the season. Especially at this time there is a good demand for general assortments of Carriage Bolts, Machine Bolts, Bolt Ends, &c., showing that there is a lot of manufacturing and repairing going on throughout the country.

Most jobbers' sales for the last six months' business show up in good round figures, and exceed in volume business of last year for the same time. Many customers who have placed orders for fall goods are giving us the privilege of sending them forward at our option, for they realize that all cannot be served at the same time, and they do not want to get left, as in former years, by not having the goods on hand when they need them.

The outlook for business for the coming months is very encouraging. Collections are very satisfactory and customers seem to have plenty of money to discount their bills.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—There is but little in trade conditions differing from what we usually look for in the month of July. It is between seasons. Many salesmen are off the road taking their vacations, and those who are on the road find many of their customers off on their yearly vacations; consequently, comparative quiet exists in trade locally or adjacent to our city.

There still remains an uncertainty of settlement of the strike in our textile industries, although possibly about one-fifth of the strikers have begun work without any change either in hours or wages. The balance, while possibly less determined than heretofore, still have not responded to the call of the employers to begin work again.

The past six months have been, as a rule, a satisfactory season in the general wholesale Hardware trade in our city, with comparatively few fluctuations in prices. The only dark cloud which has surrounded us has been the strike situation, which has been somewhat difficult to handle.

There is every indication there will be a good wheat crop and a good cotton crop, and that our manufacturers will be able to give steady employment to their employees. Therefore every indication is for a good trade in the fall.

Collections are fair, considering the time of the year.

Portland, Oregon

CORBETT, FAILING & ROBERTSON.—For the cereal year ending June 30 Portland leads the Pacific coast ports in export of wheat, San Francisco being second and the Puget Sound ports, Tacoma and Seattle combined, being third. For the six months ending June 30 Portland leads all Pacific coast ports in lumber exports, 165,000,000 feet going by rail and ocean, and the last half of the year is expected to show a marked increase over the first half.

Oregon produces more hops than any State in the Union, is one of the largest wool producers, is forging to the front in its mining interests, is an ideal fruit and stock country, has as equitable and healthy a climate as any equal area on the face of the globe, and by the time radium is in general use we expect scientific research to show that the original Garden of Eden was located in Oregon.

Above reasons amply justify the Pacific Hardware & Steel Company, Marshall-Wells Hardware Company and Waterhouse & Lester in deciding to cast their lot with us.

Trade jogs along in the same even tenor that it had earlier in the season, and if present crop prospects are fulfilled we should have a fine fall business.

San Francisco.

PACIFIC HARDWARE & STEEL COMPANY.—Business on the coast continues fully up to expectations, and the demand for staple goods is heavier than ever. Building operations in San Francisco have shown a remarkable improvement, especially in the class of buildings being erected, and the demand for the higher grade of Builders' Hardware is steadily on the increase.

Jobbers of Hardware all over the coast seem to be doing a splendid business, and the fact is becoming more and more apparent that the retailers of the Pacific slope, and especially the larger ones, are beginning to appreciate their home supply and patronize it to much larger extent than ever before, realizing that their home market is the best market to purchase in, and that when they send a dollar to an Eastern jobber mighty little of it ever returns to the Pacific slope. This is certainly a very encouraging sign, as well as a very healthy business condition, and there is no doubt but that this improvement will continue, as it results in saving money for the retailer.

Export trade is also on the increase for the reason that foreign countries are beginning to appreciate the fact that it takes so much less time to get goods from San Francisco than Eastern ports, as well as the low steamship rates now prevailing.

NOTES ON PRICES.

Wire Nails.—Demand is light and mills are taking advantage of this period for the annual inventory and clean up. The market remains firm at the following quotations, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carload lots	$2.00
Retailers, carload lots	2.05
Retailers, less than carload lots	2.15

New York.—Although building operations have not been resumed, jobbers find that demand keeps up to an unexpected volume considering the season and labor conditions. From territory tributary to this point business continues steady, but for small lots, to be shipped promptly. The market is firm at the following quotations: Single carloads, $2.20; small lots from store, $2.25 to $2.30.

Chicago, by Telegraph.—As usual at this season of the year, mills are giving much needed attention to repairs and the installation of new machinery, the light demand for goods experienced permitting such work to best advantage. Moderate shipments continue to be made, of course, but the tendency is toward a further accumulation of supplies which will find ready outlet during the fall months. In the meantime the market remains quiet and steady, sales being made at $2.15 to $2.20 in carload lots, f.o.b. Chicago. Broken cars sell at 5 to 10 cents higher. For galvanizing 75 cents per keg and for tinning $1.50 extra per keg is charged.

Pittsburgh.—The Wire Nail market continues quiet and stocks of Nails at some of the mills are reported to be large. It is believed, however, that fall trade will be fully up to expectations, and the mills are accumulating stocks in anticipation of a heavy demand for Nails later on. Prices are firm and we quote: $2 in carloads to jobbers, $2.05 in carloads to retailers and $2.15 in small lots, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days. For galvanizing Nails 75 cents per keg is charged and for tinning Nails $1.50 per keg evtra.

Cut Nails.—The mills are not now overburdened with orders to the extent of not being able to make prompt shipments. Demand is light, but the market is firm at previous quotations, which are as follows: $2.15, base, in carloads and $2.20 in less than carloads, f.o.b. Pittsburgh, plus freight in Tube Rate Book to point of destination; terms 60 days, less 2 per cent. off in 10 days.

New York.—Demand continues steady but light. The market remains firm and quotations for carloads and less than carloads are as follows: Carloads on dock, $2.29; less than carloads on dock, $2.33; small lots from store, $2.40.

Chicago, by Telegraph.—The market is somewhat easier in tone, resulting from the light demand and more ample stocks, but while some mills are in need of orders this is the usual experience at this season, when accumulations are made for the fall trade. The market remains steady on the basis of $2.30 in carload lots and $2.35 in less than carload lots for Steel, Chicago; Iron Nails are held at $2.45 to $2.50 per keg from store.

Pittsburgh.—There is a steady demand for Cut Nails, but mostly for small lots. The settlement of the strikes in the building trades will probably create a better demand. There is no change in prices and we quote: Steel Cut Nails, $2.15, base, in carloads and $2.20 in less than carloads; Iron Cut Nails, $2.25, base, in carloads and $2.30 in less than carloads, plus freight in Tube Rate Book to point of destination, 60 days, less 2 per cent. off in 10 days.

Barb Wire.—Contract orders have been pretty generally filled, while new business is light. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	$2.30	$2.60
Retailers, carload lots	2.35	2.65
Retailers, less than carload lots	2.45	2.75

Chicago, by Telegraph.—The mills have assumed an easy position and are accumulating stocks for fall shipment, new orders booked for prompt shipment being light and nearly all old contracts having been fulfilled. Prices are well sustained, however, as previously quoted: Galvanized Wire is selling on the basis of $2.75 to $2.80 in carload lots and Painted at $2.45 to $2.50, the outside price being to retailers. For small lots 5 to 10 cents extra is charged. Staples in carload lots sell as follows: Polished, $2.30 to $2.35, and Galvanized, $2.70 to $2.75, the outside price being to retailers.

Pittsburgh.—Practically no new tonnage is being placed, the mills running mostly on old contracts, specifications for which are coming in at a fairly satisfactory rate. Prices are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days: Painted, $2.30; Galvanized, $2.60, in carloads to jobbers; Painted, $2.35; Galvanized, $2.65, in carloads to retailers; Painted, $2.45; Galvanized, $2.75, in small lots to retailers.

Smooth Fence Wire.—While specifications on contract orders are being received quite liberally and new business is coming to the mills in fair volume, orders are mostly for small lots. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.90
Retailers, carloads	1.95
Less than carloads	2.05

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12&12½	13	14	15	16
Annealed	Base.	$0.05	.10	.15	.25	.35	.45	.55
Galvanized	$0.30	.35	.40	.45	.55	.65	1.05	1.15

Chicago, by Telegraph.—Notwithstanding the fact that the season is fully over, the mills are well supplied with orders, giving little time for repairs. Shipments continue unusually large for this season of the year and considerable new business is in sight. Under the circumstances the market continues unusually firm, but without change in prices, which are as follows: Nos. 6 to 9, $2.05 to $2.10 in carload lots on track, and $2.15 to $2.20 in less than carload lots from store; Galvanized, 30 cents extra for Nos. 6 to 14 and 60 cents extra for Nos. 15 and 16.

Pittsburgh.—There is a fair volume of new business, but the mills are employed mostly on old orders. The market is fairly firm and we quote: Plain Wire, $1.90, base, for Nos. 6 to 9 in carloads to jobbers, $1.95 in carloads to retailers and $2.05 in small lots to retailers; Galvanized, 30 cents extra for Nos. 6 to 14 and 60 cents extra for Nos. 15 and 16.

Binder Twine.—Reports from the West and Northwest indicate that dry weather has caused a light growth of oat straw in the former and that similar conditions

have produced like results in the spring wheat sections of the latter, so that it is estimated that considerably less Twine will be required than for last year. Twine is being held at different distributing points at prices ranging from 10¾ to 12½ cents by jobbers. In the East trade is not being solicited. One manufacturer has a limited quantity which is being sold in small lots at 11½ cents for Sisal and Standard. Within the next week or two Twine will probably be more easily obtained, as orders now on manufacturers' books will be more nearly filled.

Liquid Fish Glue.—Under date of June 1 the Russia Cement Company, Gloucester, Mass., issued a revised price-list of Le Page's Liquid Glue, which shows a reduction in list with two exceptions. The new list is subject to a discount of 25 per cent. to dealers, with additional discounts in the jobbing trade. Other manufacturers announce no change in their lists or discounts.

Paris Green.—Owing to the small current demand the regular schedule of prices adopted by manufacturers at the commencement of the season is not being strictly maintained in all instances. Quotations are not infrequently made for small lots at ¾ to 1 cent below the accompanying manufacturers' schedule. Those with Green on hand generally prefer to sacrifice some profit rather than to carry it over.

Less than 1 ton.	Per lb.
Arsenic kegs or casks	13½c.
Kegs, 100 to 175 pounds	14c.
Kits, 14, 28, 56 pounds	15c.
Paper boxes, 2 to 5 pounds	15c.
Paper boxes, 1 pound	15½c.
Paper boxes, ½ pound	16c.
Paper boxes, ¼ pound	17c.

One to 5 tons, 1 cent per pound less; 5 tons and over, 1½ cents per pound less.

Glass.—Conditions remain unchanged and the market continues quiet. Indications point to increased Glass producing capacity in the fall, by the addition of independent factories. It is reported that the Penn Window Glass Works at Spring City, Pa., have been purchased by Belgians, and will be run on the co-operative plan, and that the concern will hereafter be known as the Philadelphia Glass Company. Regulating the production of Glass will apparently be a problem which will again confront the combined companies in the fall. Locally, demand is very light. The Jobbers' Association' quotations are as follows: In small lots, 90 and 5 per cent. discount for the first three brackets, and 90 and 15 per cent. discount for all sizes above, either single or double strength.

Oils.—*Linseed Oil.*—Demand has continued light owing somewhat to the unsettled condition of the seed market, the trend in values having been downward. Large buyers have been holding off for a firmer Oil market and more settled business conditions. A reduction of 2 cents per gallon was made by the crushers on the 14th inst., resulting in the following quotations: City Raw, in lots of five barrels or more, 38 cents; in lots of less than five barrels, 39 cents per gallon. Out of town brands of Raw are quoted, according to quantity, at 36 to 37 cents per gallon.

Spirits Turpentine.—The market has continued quiet and without change during the week. Quotations, according to quantity, are as follows: Oil barrels, 51 to 51½ cents; machine made barrels, 51½ to 52 cents per gallon.

DEATH OF GEORGE M. HOWELL.

GEORGE M. HOWELL, one of the oldest and most respected citizens of Meriden, Conn., died at his home July 2, after a severe illness lasting several weeks. Mr. Howell, when 21 years old, accepted a position as bookkeeper for the Meriden Cutlery Company of that city, and through his ability rose to the position of treasurer of the company. After A. L. Collins died, about two months ago, he was chosen secretary and since that time had held both offices. He was likewise a director of the company. He is survived by a widow.

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THE SARATOGA CONVENTIONS.

Southern Hardware Jobbers' Association.
American Hardware Manufacturers' Association.

WHAT were technically two separate conventions, but practically a joint meeting of the Southern Hardware Jobbers' Association and the American Hardware Manufacturers' Association, were begun in Saratoga on Tuesday, July 14, with a programme which will not be completed until Friday evening. Careful and elaborate preparations had been made to render this gathering both enjoyable and useful, as the matter of entertainment and the discussion of important trade questions

were both given a large place. In this way were brought together two important Hardware associations, that of the jobbers being among the oldest and that of the manufacturers one of the most recent. While each of the associations had its own programme, these programmes were practically identical, so far as the open or joint sessions were concerned. Arrangement was also made for their separate executive sessions, to which only the members of the respective associations were invited. The headquarters of both associations were at the Grand Union Hotel, although a goodly number of the delegates were at the Congress Hall.

OPENING SESSION.

The convention opened on Tuesday morning with a large gathering of manufacturers and their representatives, and a relatively small number of the members of the Southern Hardware Jobbers' Association. The meeting was called to order by F. W. Heitmann, president, and after a prayer by the Rev. Joseph Carey, the company united in singing "America." A graceful address of welcome was extended by Mr. Heitmann, after which the courtesies of Saratoga Springs were extended by A. P. Knapp, president of the village.

J. D. Moore was on the programme for an address of welcome to the manufacturers, but was unable to be present, and his place in this function was admirably taken by W. M. Crumley, who in a very happy manner referred to the courtesies and attendance of the manufacturers and gave a welcome to all who were present.

The response to this welcome was made by N. A. Gladding of E. C. Atkins & Co., whose popularity was evinced by the applause which was given to his appearance and his words. Mr. Gladding's response was as follows:

Response of N. A. Gladding.

With your kind permission, I desire to thank the Executive Committee of the Southern Hardware Jobbers' Association for the honor conferred upon me by its invitation to respond on behalf of the manufacturers to the hearty welcome to this—your thirteenth annual meeting—to which we have just listened with so much pleasure.

Experience has taught me that while it may not be difficult to accept an invitation to make a speech, the fulfilling of the contract is a different matter, especially when the audience is such an intelligent one as I have before me to-day. To be released from the responsibility one would often be willing to pay a good bonus.

I am sure, however, that on this beautiful July morning it is not a hard matter to express the sentiment of every manufacturer and guest present, in saying that we all most heartily appreciate the invitation to attend this convention of your association at this celebrated "Queen of Spas," as we also appreciate the cordial welcome that has been extended to us here to-day. We know that these welcome words are genuine and sincere, because for 13 years some of us, at least, have had the great privilege and pleasure of meeting and mingling with you, and thereby coming into personal contact with the members of your association, and we can, therefore, testify to their warm heartedness, their generosity of spirit and their loyal friendship.

We all doubtless know of some people, who hold to the idea that the astute man of business must be cold blooded and distant in manner, and that he must even avoid the appearance of sociability; but I believe that such a notion is a mistake. The success of many kindly, whole hearted men whom we all know is a refutation in itself of such an idea; and it therefore seems to me that the man who has an iceberg for a habitation loses a great deal in this life in more ways than one

Please understand that I am not decrying the man with a cool head—he is a different proposition. The buyer with the ice on his head, as it were, but with a heart bubbling over with a warmth of good will toward

men is, no doubt, more likely to receive any extra "five's" that are being passed around than the one who makes the salesman feel that he needs a fur overcoat whenever he approaches the confines of the throne.

WELCOME FOR WELCOME.

You are met in a Northern clime for the first time which happily gives us the opportunity of returning welcome for welcome, and which we extend to you with a heartiness that knows no bounds. You have brought with you the spirit of the sunny, glorious, happy Southland. It is in your faces and in your hearts, and it cannot fail to permeate your entire session, making it the most notable meeting ever held by your association.

When I first heard of your decision to make Saratoga Springs your meeting place I said at once that it was quite evident that the majority of your members must be "riding on the water wagon" this summer, and therefore voted to go where they could lay in—or, I should say, pour in—a good supply of the liquid that exhilarates but does not intoxicate. I take it that Atlantic City was a very

good place for the external man, but judging from some remarks that were heard last year, from those who made useless journeys about the Marlborough, the internal man was not so well provided for. There will be no trouble, however, about giving "Mr. Innerman" a sufficient bathing here at the Springs. It has been told to me "on the quiet," but I will confide it to you, that the water here does not mix very well with anything else, consequently it is recommended that you be careful as to the kind of "ink" that you put with it.

A PAIR OF STORIES.

I notice in the neat programme that your secretary has prepared we are told that we can live as cheaply in Saratoga as anywhere else, which I am pleased to learn. It reminds me of the story of the young man who came in from the country to attend school in a certain college town. In some way he had absorbed the idea that for everything he did he must get his "money's worth," and he applied this to his boarding house, as well as other things, and his landlady was so astounded at the amount of food he ate that she told him that she would raise the

N. A. GLADDING.

price of his board. "Oh, pray, don't do that, madame," said he, "for I cannot possibly eat any more."

And speaking of eating, I suppose you have all heard the pie story told by one of the celebrated Senators from this State, who is noted for his story telling. I am told that he was attending a banquet in London, and when the time for stories came around he was asked to give a sample of American joke, and modestly said that he knew but very few of them, but would, nevertheless, do his best under the circumstances. He said that over in America (especially in New York State) people are very fond of pie, so much so that one would often find it on the table in some homes three times a day. On one occasion there was a traveler stopping at an inn in a country town, where they had no printed *menu* but where the waiters came up behind the guest and called out the names of the articles of food on the programme. When they arrived at dessert the waiter asked the guest whether he would have "puddin'" or pie, whereupon the guest asked the waiter, "What kind of pie have you?" The waiter replied, "Peach, pear, plum, mince, quince, rhubarb and apple." "Well," says the guest, "I'll try a piece of the peach and the pear and the plum, and I guess you might bring me a little of the mince and the quince, too." The waiter started off, when the guest called back and said: "By the way, I would like to try that rhubarb pie, also," whereupon the waiter said: "Well, what's the matter with the apple?" The Englishmen smiled in rather a sickly way and afterward got off in a corner by themselves and decided to have one of their number ask the Senator what the matter really was with the apple pie.

THE PESSIMIST AND THE BUSINESS OUTLOOK.

Just a word, Mr. President, as to the business outlook. Should we listen to the pessimists and agree with their way of thinking we would all soon be in the slough of despond. A good definition has been given by some one of the pessimist, which is that he is a man who, of two evils, always chooses both. We have been hearing from him during the past two or three years to the effect that we would soon have another panic and that the times are out of joint, &c., and I really believe that some of the pessimists are very much disappointed and sorry that their predictions have not come true. How much better it is to be an optimist with the proper degree of conservatism as a balance wheel. That there have been some clouds upon the business horizon during the past year or so which have affected some portion of the body politic we all admit; yet they have all been, or are being, dissipated one by one, and they will continue to be. No matter if the question be "Tariff," "Finance," "Labor Troubles," or what not, the great common sense of the people in this wonderful land of ours must and will in the end prevail. The old adage, "Do with your might what your hands find to do," should be brought into use again by a lot of people who seem to think that it is something obsolete.

"Justice to all men" must be the watchword, as guaranteed by the Constitution and the flag, and each and every man must be allowed the right to pursue health, wealth and happiness as he thinks best, within the law.

I believe that this country is by a large majority in favor of these principles, and that those who would tear down the structure of good government or in any way destroy the peace and happiness of the land are greatly in the minority. A few lines from the Bishop of Exeter may not be amiss:

Give us Men!
Men—from every rank,
Fresh and free and frank;
Men of thought and reading,
Men of light and leading,
Men of loyal breeding,
The nation's welfare speeding;
Men of faith and not of fiction,
Men of lofty aim in action,
Give us Men—I say again,
Give us Men!

Give us Men!
Strong and stalwart ones;
Men whom highest hope inspires,
Men whom purest honor fires,
Men who trample self beneath them,
Men who make their country wreathe them,
As her noble sons,
Worthy of their sires!
Men who never shame their mothers,
Men who never fail their brothers;
True, however false are others,
Give us Men—I say again,
Give us Men!

Give us Men!
Men, who, when the tempest gathers,
Grasp the standard of their fathers
In the thickest fight;
Men who strike for home and altar
(Let the crowd cringe and falter),
God defend the right!
True as truth, though lorn and lonely,
Tender, as the brave are only;
Men who tread where saints have trod,
Men for country—home—and God;
Give us Men! I say again—again—
Give us such Men!

Let us thank God that in these United States we have millions of such men from every rank and therefore we need not fear for the future.

It is the sincere wish of the manufacturers that your deliberations during the sessions that you will hold this week may be the means of bringing forth great good to your members, as in the past; and that the greetings of the old and the making of new friends may altogethef result in this being the most enjoyable and profitable meeting ever neld by your association.

President Heitmann's Annual Address.

The formal annual address of the president was then given, as follows:

I see before me a gathering of prominent, substantial business men from every State in the South, who are here to rejoice in the success of the Southern Hardware Jobbers' Association and will delight in celebrating the thirteenth anniversary. Never was there such an opportunity for universal rejoicing of the general prosperity of the country. The success of our association in the past and the good results attained from its efforts should be an assurance of its future success.

THE PAST.

In looking back and making observations and comparisons of the conditions and the methods of handling the Hardware business to-day and 13 years ago one sees some wonderful changes in business methods. Conditions have changed so rapidly that it has kept every one busy to keep pace and follow the line of the march of prosperity.

No line of business has undergone such drastic and positive changes, almost at times bewildering. Under the old system of doing business, we found ourselves continually cutting prices, until business would become unprofitable, irregular terms would be made, and then a continued effort would be made to have the manufacturer reduce the prices, which would only result in further temptation to make more cuts and reduce prices to a still lower level, thereby only increasing the difficulties.

Manufacturers were eager for business, and would make concessions on large quantities. This would in many instances affect the jobber disastrously on account of overbuying and the other evils naturally following. These conditions continued to grow worse until 1893, when the climax came and resulted in one of the greatest panics that has ever been known in America. All values, merchandise, real estate, lands, bonds, stocks, &c., began to shrink in value to such an alarming extent that recovery looked almost impossible, but it did not take the great American people long with its wonderful resources and recuperative power to grasp the situation, and the manufacturer immediately set to work in trying to push his surplus products in foreign countries. American goods gained such favor in Europe that exports of manufactured goods increased to an extraordinary extent. The manufacturer once having this increase for his output has been gradually fostering it until now American Hardware, Tools, Implements, Machinery, &c., can be bought in every civilized country in the world. The surplus being absorbed in this way, prices gradually began to go up on all lines of goods. Confidence was gradually regained and business stimulated, until in 1899 we were confronted with a new era of business. Prosperity seemed to be staring us in the face once more.

The organization of corporations with immense capital came like a thunderbolt from the clear sky. Finally the manufacturers of the various lines of trade began to concentrate and form what are known as trusts, until they have taken in the larger part of the materials covered by the Hardware trade. With the organization of these various institutions and to suit the new conditions prevailing it was necessary to drop some of the old familiar methods. Naturally dissatisfaction and criticism followed, as it was very difficult for the country at large to adjust and shape itself so rapidly. This in consequence brought many hardships, especially to the jobber and small dealer, who were trying to line their customers up to the new methods of doing business. It is wonderful that these adjustments and changes have been successfully carried out in such a short time.

MANUFACTURERS OF TO-DAY.

The manufacturer of to-day finds himself more prosperous than at any time in the past, is earning more money, paying larger dividends, enjoying greater tonnage than ever before. In fact the most sanguine did not anticipate such wonderful increase in tonnage, especially on the heavier lines, such as Pig Iron, Heavy Iron and Steel Products. Manufacturers have oversold to such an extent that it is necessary for you to anticipate your orders months ahead, in order to get deliveries. Buyers are compelled, even at the high prices, to import from Europe, and with all this the demand cannot be supplied. This extraordinary growth and development has given the transportation lines more tonnage than they had facilities for handling, which resulted in some of the greatest congestions in manufacturing centers that have ever been known to railroad traffic. The railroad companies have increased their facilities and equipments by enormous expenditures of money. These delays in deliveries have worked a hardship on the Hardware business. The manufacturer takes his own good time in making shipments, the railroad company take equally as long a time and use their own pleasure as to when delivery is to be made, but they are rapidly improving the conditions, and it will not be long before the railroads will be fully equipped to handle the traffic that is given them. The transportation companies have had immense earnings during this prosperity, many railroads are now paying dividends, some of which had never hoped to do so, and it is a rare thing to hear of a railroad being placed in the hands of a receiver, while but a few years past it was a common thing.

F. A. HEITMANN.

in fact seemed to be almost the proper thing, for a railroad to be in the hands of a receiver in order to keep running.

THE HARDWARE JOBBER OF TO-DAY.

Having enumerated the prosperity of the manufacturers and the transportation lines, it is now up to the jobber to see how his interests appear in this question of prosperity. There are some among us who have holdings outside of the Hardware business that would naturally in times like these be increased in value, but the question is have the jobber's earnings increased in proportion to his increased sales? Are his increased sales due entirely to the increased business, or are they due to the increase in values of goods? The jobber is naturally entitled to his increased profits on increased values of goods. Have we increased our profits in proportion to the increased costs? Unless we have done so we will find that we are doing an increased business at a loss, as the cost of doing business keeps pace with the prosperity of the times. The increased cost of doing business in the past few years has been considerable. Rents, clerk hire and all incidental expenses are much larger than ever heretofore, not saying anything about the increased capital required to do business on present values. I therefore hope that all of this has been borne closely in mind by all of the membership.

In conclusion will state that we should all use our utmost efforts in the interest of the association and try to make it as useful and profitable as possible, not losing sight of the good work that has been done in the past. We should also use our efforts in establishing local organizations in the various States of the South. Our association finds that where local organizations exist the results are better to the members.

The secretary will give you the details of the condition of the association and its work for the past year.

After a brief address by F. R. Plumb, president of the manufacturers' association, and the transaction of some routine business, the morning session closed.

THE AFTERNOON SESSION

of the American Hardware Manufacturers' Association was held at 3 o'clock and was thrown open to all manufacturers and their representatives. At this time the presidential address of F. R. Plumb was presented, reviewing the work of the association and suggesting lines on which it could render service to the trade. Mr. Plumb's address was as follows:

President Plumb's Address.

It is exceedingly gratifying to be able to extend to you a cordial welcome to this historical spot, especially so because in years gone by it was the summer home of many of those who were residents of the quaint old city that gave us such a hearty welcome and did so much for us at our annual meeting in November last. No matter what our future may be or how regally we may be entertained in other cities, no one who participated in the hospitalities extended to us by the citizens of New Orleans will ever forget their generous action, particularly the care and attention shown to our wives and daughters. I therefore desire at this meeting to put myself on record as again extending to them the thanks of the association.

Our annual meeting proved a success in every way. The members of the Executive Committee were somewhat fearful that the attendance would not come up to the expectation of the membership because of the great distance from the center of the manufacturing districts. I am very glad to say, however, that they were happily disappointed. The attendance was much larger than at the former meeting, while the interest taken in all matters coming before us for consideration showed beyond doubt that our people were convinced that our association stood for something beyond a social organization.

I therefore hope that you have come here to-day prepared to present new subjects of mutual interest, and that you will not hesitate to introduce them at our executive sessions, and that if you have any complaints to make you will not hesitate to present them, as I am sure I voice the sentiment of the great majority of this assembly when I say we are all determined to make our organization a tower of strength and a power for good to each member.

In the course of my remarks at New Orleans I referred to the subjects that had been before us for discussion at previous meetings—viz., "Cash Discount," "Contracts" and "Special Brands"—requesting you to use your influence to eliminate the objectionable features from your business, as I was confident you would overcome them by concerted action. Unless you are in earnest, however, in your desire to correct these abuses very little good can be accomplished, no matter how persistent your Executive Committee may be in their recommendations.

In addition to the subjects alluded to, I requested you carefully to consider the "Guaranteeing of Prices," and hoped that my remarks would bring out a general discussion at our subsequent meetings. Owing to other business, however, which consumed the time of the association it escaped our attention. The chairman of the Executive Committee has, therefore, kindly consented to read a paper on the subject, and I hope a general discussion will follow.

The minutes of the third convention were published in detail. It is, therefore, unnecessary for me to refer to them excepting in a general way. I think it my duty, however, to speak of the admirable address of welcome of M. T. Sanders, president of the New Orleans Progressive Union, and the eloquent response made by Julius C. Birge. In connection with this I should like to call your attention to the different members' papers, which were a source of much pleasure to us all, and added greatly to the popularity of the meeting.

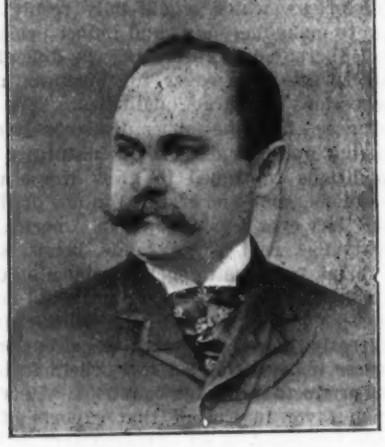
PROSPERITY

still seems to be the watchword of the nation. Old establishments are not only employed to their fullest capacity, but new ones, complete with all modern improvements, are springing up on every hand, and while the production in all kinds of industry has been greatly increased the demand seems to keep pace with it. These conditions are more noticeable where iron and steel are the chief factors, so much so that we can safely predict that the business outlook for the balance of this year is most promising.

WHAT IS THE OUTLOOK FOR 1904?

Under ordinary circumstances I believe the opinion would be nearly unanimous that there was every indication, owing to the great development in all internal improvements requiring a great outlay of capital and the enormous consumption of raw material, that our success was assured for years to come. A grave situation, however, confronts us.

The labor agitators are creating a restless spirit among all classes of employees. The factory, the mill, the day laborer, the mechanic; in fact, any employer or laborer, no matter what the work may be, is feeling the effects of this agitation. Strike after strike is reported daily from every quarter of the country, and the situation thus created has become unbearable. Owing to the great demand and the necessity of completing contracts, the employers have made concession after concession until the cost, in a great many instances, has increased to such an extent that business cannot be transacted without loss. This has led to lockouts and the suspension of large building enterprises during the past two months until the number of idle hands can be counted by the thousands. This means starvation and suffering to a great multitude of people; loss to hundreds of employers, loss in production, the cancellation of contracts, the abandonment of large enterprises and ultimately a loss of confidence and a check to prosperity, unless the agitators can be relegated to the rear and the former pleasant relations between employer and employee restored.



FAYETTE R. PLUMB.

UNREASONABLE STRIKES.

In order to show you how unreasonable and to what extent some of these strikes have been carried, I will give you a little instance in my own city. The Bellevue-Stratford Hotel was started last summer under most favorable circumstances; work progressed so rapidly in demolishing the buildings and preparing for the foundation that the owners felt justified in announcing that the hotel would be ready to receive guests by January, 1904. It was not long, however, before the labor agitators began to show their hand. This led to a strike in one branch of the work and then to another until the total number reached over 40 before the great shut down in May last. The situation became so bad that one labor organization struck against another because they did not belong to the same great society, and the contractors and owners were compelled to suffer, although they had nothing to do with the trouble. Can you wonder that this led the master

builders to form a close organization, which took prompt action on May 1 by locking out all their employees when the carpenters demanded an increase in wages from 40 to 50 cents per hour and eight hours as a day's work? This great shut down lasted over six weeks and caused a loss to capital and labor which it is hard to estimate.

You are also, doubtless, familiar with the strike in the textile industries of Philadelphia, which occurred on June 1. This was the outcome of the agitation from outside organizations, who established separate branches of the same general line controlled by the chief organization in a neighboring city. Their demands were so unjust that all manufacturers were compelled to unite, and after holding several meetings, they decided to make no concession whatever, claiming, and justly too, that the conditions of the trade in these lines would not warrant it. This led to the closing of nearly every mill in the city, throwing over 60,000 out of employment.

SUCH DRASTIC MEASURES

as were adopted in these two instances will undoubtedly lead to good results. While, temporarily, it may effect general business and check the great wave of prosperity, it will show those who have been feeding upon the credulity of the laboring classes that the manufacturers will have something to say in future in regard to the management of their own business.

In order to accomplish this it may be necessary for the employers to unite and meet force with force, and at the same time refuse to recognize any one but those directly interested, and when negotiating with the men convince them by fair treatment that we are their friends and the agitators and walking delegates their enemies.

The resolutions adopted by the National Association of Manufacturers at their last annual convention cover the ground thoroughly and are so manifestly fair that I have thought it best to incorporate them in my remarks, as follows:

DECLARATION OF PRINCIPLES.

1. Fair dealing is the fundamental and basic principle on which relations between employees and employers should rest.

2. The National Association of Manufacturers is not opposed to organizations of labor as such, but it is unalterably opposed to boycotts, black lists and other illegal acts of interference with the personal liberty of employer or employee.

3. No person should be refused employment or in any way discriminated against on account of membership or nonmembership in any labor organization, and there should be no discriminating against or interference with any employee who is not a member of a labor organization by members of such organizations.

4. With due regard to contracts it is the right of the employee to leave his employment whenever he sees fit, and it is the right of the employer to discharge any employee when he sees fit.

5. Employers must be free to employ their work people at wages mutually satisfactory, without interference or dictation on the part of individuals or organizations not directly parties to such contracts.

6. Employers must be unmolested and unhampered in the management of their business, in determining the amount and quality of their product, and in the use of any methods or systems of pay which are just and equitable.

7. In the interest of employees and employers of the country no limitation should be placed upon the opportunities of any person to learn any trade to which he or she may be adapted.

8. The National Association of Manufacturers disapproves absolutely of strikes and lockouts, and favors an equitable adjustment of all differences between employers and employees by any amicable method that will preserve the rights of both parties.

9. The National Association of Manufacturers pledges itself to oppose any and all legislation not in accord with the foregoing declaration.

I earnestly recommend that this association pass a resolution at this meeting giving these resolutions their unqualified approval. In addition to this recommendation I hope each member of the American Hardware Manufacturers' Association will use all the power and influence at his command to enforce them in his own business. If you will do this, I am confident that you will help greatly toward placing the relation between capital and labor upon a more equitable basis and at the same time greatly strengthen your position with your own employees. The time is propitious and prompt action is necessary.

Before closing permit me to refer to the splendid list of names on

OUR MEMBERSHIP ROLL.

While it comprises most of the leading manufacturers of Hardware and kindred lines, there are still others that it is desirable to include, and I hope that all of you will interest yourselves in aiding the secretary to secure them before the Atlantic City convention in November next, as it is the intention of the officers of this association to make the gathering there a memorable one.

I sincerely hope that your stay here may prove so profitable and entertaining that you will not hesitate to accept the suggestions tendered in regard to the increase in membership, and that the next convention will prove the assertions made heretofore that our association has taken the lead of all other business organizations in the United States.

The Boycott.

A forcible and very interesting address was made by Daniel Davenport of Bridgeport, Conn., on the boycott and how it can be destroyed. Mr. Davenport gave an impressive picture of the tyranny of trade unionism and criticised some of the measures by which employers seek to combat the evils, suggesting that employers and the public generally should insist on the enforcement of the law, especially as it relates to conspiracy. Mr. Davenport's address was listened to with the closest attention and at its conclusion a vote of thanks was extended to him.

Routine business connected with the work of the association, including the report of the secretary and treasurer and reports of the Executive, Membership and Grievances committees, occupied the remainder of the session.

The report of the Executive Committee was presented by C. W. Asbury of the Enterprise Mfg. Company, Philadelphia, who was chosen chairman of the committee on the resignation of Robert Garland, who has occupied the position during the year.

On motion of F. S. Kretsinger the New Orleans resolutions in regard to the labor question were unanimously adopted by the association.

After a statement by H. B. Lupton on behalf of the Reception Committee the session closed.

WEDNESDAY MORNING.

Another joint session was held on Wednesday morning which was very largely attended. An address of welcome to the visiting jobbers was made by J. C. Birge of the St. Louis Shovel Company, St. Louis. The entire session was practically given up to the reading of interesting and carefully prepared papers by gentlemen prominent in the manufacturing and jobbing field. Among topics thus brought to the attention of the members of both associations were the following:

"The Twentieth Century Distributer; His Relations to the Jobber and Manufacturer," by C. M. Fouche, Crucible Steel Company of America, Chattanooga, Tenn.

"Advantages and Disadvantages of Net Prices and Grouped Discounts as Against Uniform Lists and Discounts," by John Donnan, the W. S. Donnan Hardware Company, Richmond, Va.

"Salesmanship — Some Definitions Quoted and Thoughts Expressed by an Office Man," by L. D. Vogel, Charter Oak Stove & Range Company, St. Louis, Mo.

"What Should Be the Policy of the Manufacturers in the Distribution of Their Products?" by E. B. Pike, Pike Mfg. Company, Pike Station, N. H.

"Who Has the Right to Route Shipments, the Buyer or Seller?" by E. A. Peden, Peden Iron & Steel Company, Houston, Texas.

"Price Guarantees," by Charles W. Asbury, Enterprise Mfg. Company, Philadelphia, Pa.

It was intended to have a short discussion after the reading of each paper, but there was no time for this. Most of these papers are published in the following columns.

Reception Committees.

Reception Committees, made up of manufacturers and jobbers and their traveling representatives, were appointed by both associations to look after the comfort and promote the acquaintance of those in attendance. The Reception Committee of the Manufacturers' Association was as follows:

Henry B. Lupton, Chairman, Oliver Iron & Steel Company, Pittsburgh, Pa.
T. H. Taylor, American Steel & Wire Company, New York City.
George P. Hart, the Stanley Works, New Britain, Conn.
Tom Almgill, G. & H. Barnett Company, Philadelphia, Pa.
Edward Ingalls, the Atha Tool Company, Newark, N. J.
Fred. S. Merrick, Standard Horse Nail Company, New Brighton, Pa.
E. G. Buckwell, Cleveland Twist Drill Company, Cleveland, Ohio.
W. C. Reitz, Pittsburgh Steel Company, Pittsburgh, Pa.
George A. Baird, Republic Iron & Steel Company, Chicago, Ill.
M. J. Perry, Nicholson File Company, Providence, R. I.
George M. Landers, Landers, Frary & Clark, New Britain, Conn.
Fred. J. Johnson, Iver Johnson's Arms & Cycle Works, Fitchburg, Mass.
Chalmers M. King, McKinney Mfg. Company, Allegheny, Pa.

The Reception Committee of the Southern Hardware Jobbers' Association was as follows:

Irby Bennett, chairman, Winchester Repeating Arms Company.
R. N. Barber, Smith Hemenway Company.
S. B. Bispham, Russell & Erwin Mfg. Company.
A. W. Bond, Goodell Cutlery Company.
R. P. Boyd, John H. Graham & Co.
E. H. Brittan, Iowa Farming Tool Company.
R. D. Carver, Alabama Steel & Wire Company.
Percy C. Cauthorn, W. W. Crandall & Co.
H. P. Chenoweth, Sargent & Co.
W. A. Corry, J. C. McCarty & Co.
Geo. L. Corbin, Corbin Cabinet Lock Company.
Harry Disston, Henry Disston & Sons.
H. L. Durrell, Harriman Hoe & Tool Company.
Thos. Ellis, Iver Johnson Arms & Cycle Works.
F. H. Forman, Pittsburgh Steel Company.
C. M. Fouche, Crucible Steel Company of America.
L. C. Frazer, Fayette R. Plumb. Incorporated.
J. S. French, Peters Cartridge Company.
Robert Garland, Garland Nut & Rivet Company.
T. W. Gathright, E. C. Atkins & Co.
John R. Gilfillan, Belfont Iron Works.
J. J. Gilmore, American Steel & Wire Company.
N. A. Gladding, E. C. Atkins & Co.
T. H. Gossett, Peck, Stow & Wilcox Company.
J. H. Grubb, Hussey, Binns & Co.
Frank Guildener, Sargent & Co.
D. P. Hale, Standard Wheel Company.
Geo. L. Haven, P. & F. Corbin.
B. A. Hawley, Russell & Erwin Mfg. Company.
J. Hildreth, Jr., Winchester Repeating Arms Company.
G. B. Hobson, Tredegar Iron Works.
John Hoen, Henry Keidel & Co.
Jos. M. Hottel, G. & H. Barnett Company.
W. P. Hudson, Russell & Erwn Mfg. Company.
Fred. M. Huggins, Landers, Frary & Clark.
Arthur S. Jones, the Indiana Chain Works.
J. P. Kelly, Kelly Axe Mfg. Company.
Chas. P. King, American Iron & Steel Mfg. Company.
George L. Knight, Tubular Rivet & Stud Company.
A. C. Langston, Jenkins Bros.
John J. Mapp, National Enameling & Stamping Company.
O. C. Mead, Mead & Smith.
Guy Mitchell, Beers & Mitchell.
V. A. Moore, American Iron & Steel Mfg. Company.
John R. Morris, National Enameling & Stamping Company.
W. J. Orr, Old Dominion Iron & Nail Works Company.
Frank Ouerbacker, O. K. Stove & Range Company.
J. B. Parrent, Yale & Towne Mfg. Company.
Wallace L. Pond, Nicholson File Company.
James T. Powell, Stanley Rule & Level Company.
J. E. Pumphrey, Standard Chain Company.
J. T. Quarles, Lamson & Goodnow Mfg. Company.
H. F. Reese, the Fairbanks Company.
H. G. Reinicker, Baltimore, Md.
J. W. Ryan, P. & F. Corbin.
John S. Sanders, Union Metallic Cartridge Company.
Fred. S. Seeley, Wiebusch & Hilger.
W. T. Shannon, American Steel Sheet Company.
W. P. Smith, Mead & Smith.
Daniel K. Stucki, White Mountain Freezer Company.
J. P. Tabb, Tabb Bros. & Co.
Wm. Taylor, Pittsburgh Steel Company.
L. D. Vogel, Charter Oak Stove & Range Company.
F. C. Wheeler, Hermann Boker & Co.
Chas. H. Wier, Wier & Wilson.
George P. Wier, Wier Bros.
John K. Wilson, Wier & Wilson.
C. K. Woodburn, Warren McArthur.
H. H. Beers, sergeant-at-arms, Beers & Mitchell.

Southern Hardware Jobbers' Association.

We give below the names of the officers and important committees of the Southern Hardware Jobbers' Association. It will be of interest as showing the thoroughly representative character of this organization and indicating some of the lines on which they are working:

Officers.

PRESIDENT, F. A. Heitmann, F. W. Heitmann Company, Houston, Texas.
FIRST VICE-PRESIDENT, Col. B. F. Eshleman, Stauffer, Eshleman & Co., New Orleans, La.
SECOND VICE-PRESIDENT, John Donnan, the W. S. Donnan Hardware Company, Richmond, Va.
SECRETARY-TREASURER, C. B. Carter, Knoxville, Tenn.

EXECUTIVE COMMITTEE.

W. M. Crumley, Beck & Gregg Hardware Company, Atlanta, Ga.
O. B. Barker, Barker-Jennings Hardware Company, Lynchburg, Va.
Chas. H. Ireland, Odell Hardware Company, Greensboro, N. C.
C. E. Speer, Speer Hardware Company, Ft. Smith, Ark.

ADVISORY BOARD.

(Composed of ex-Presidents.)

W. E. Newill, King Hardware Company, Atlanta, Ga.
G. W. Barnett, G. W. Barnett Hardware Company, Montgomery, Ala.
J. J. Mandlebaum, Fones Bros. Hardware Company, Little Rock, Ark.
O. B. Barker, Barker-Jennings Hardware Company, Lynchburg, Va.
J. D. Moore, Moore & Handley Hardware Company, Birmingham, Ala.

Standing Committees.

SUPPLY COMMITTEE.

W. H. Kettig, Milner & Kettig Company, Birmingham, Ala.
W. D. Krenson, J. D. Weed & Co., Savannah, Ga.
Thos. W. Fritts, Tom Fritts Hardware Company, Chattanooga, Tenn.

METAL COMMITTEE.

Albert Baldwin, A. Baldwin & Co., New Orleans, La.
Bruce Keener, C. M. McClung & Co., Knoxville, Tenn.
J. H. Fall, J. H. Fall & Co., Nashville, Tenn.

TRANSPORTATION COMMITTEE.

W. E. Newill, King Hardware Company, Atlanta, Ga.
Chas. H. Watkins, Watkins-Cottrell Company, Richmond, Va.
W. L. Sanford, Roberts, Sanford & Taylor Company, Sherman, Texas.

PRESS COMMITTEE.

F. P. May, F. P. May & Co., Washington, D. C.
A. B. Palmer, Palmer Hardware Company, Savannah, Ga.
A. P. Duncan, McLendon, Duncan & Co., Waco, Texas.

MANUFACTURERS' COMMITTEE.

Frank S. Gray, S. B. Hubbard & Co., Jacksonville, Fla.
J. S. Carson, Charlotte Hardware Company, Charlotte, N. C.
Thos. P. Smith, Turner Hardware Company, Muskogee, I. T.

GRIEVANCE COMMITTEE.

James Moroney, Moroney Hardware Company, Dallas, Tex.
W. D. Mounger, Baker & McDowell Hardware Company, Natchez, Miss.
P. G. Wall, Knight & Wall Company, Tampa, Fla.

MEMBERSHIP COMMITTEE.

Joseph Orgill, Orgill Bros. & Co., Memphis, Tenn.
R. F. Bell, Wm. Henry & R. E. Bell Hardware Company, Fort Worth, Texas.
C. A. Cunningham, Cunningham Hardware Company, Mobile, Ala.
W. A. Pleasants, W. A. Pleasants Hardware Company, Shreveport, La.
F. W. Powers, Mitchell, Powers & Co., Bristol, Tenn.

American Hardware Manufacturers' Association.

Following are the names of the officers and principal committees of the American Hardware Manufacturers' Association:

PRESIDENT, Fayette R. Plumb, Fayette R. Plumb, Incorporated, Philadelphia, Pa.
VICE-PRESIDENTS: F. S. Kretsinger, Iowa Farming Tool Company, Fort Madison, Iowa; J. C. Birge, St. Louis Shovel Company, St. Louis, Mo.; George W. Corbin, Corbin Cabinet Lock Company, New Britain, Conn.
SECRETARY-TREASURER, F. D. Mitchell, Frick Building, Pittsburgh, Pa.

EXECUTIVE COMMITTEE.

C. W. Asbury, chairman, Enterprise Mfg. Company, Philadelphia, Pa.
Henry B. Lupton, Oliver Iron & Steel Company, Pittsburgh, Pa.
N. A. Gladding, E. C. Atkins & Co., Indianapolis, Ind.
W. S. McKinney, McKinney Mfg. Company, Allegheny, Pa.
Frank L. Clark, Alabama Tube & Iron Company, Birmingham, Ala.
H. C. Holt, the Lamson & Sessions Company, Cleveland, Ohio.
Geo. M. Landers, Landers, Frary & Clark, New Britain, Conn.

MEMBERSHIP COMMITTEE.

William H. Hays, chairman, Iron City Tool Works, Pittsburgh, Pa.
Geo. P. Hart, the Stanley Works, New Britain, Conn.
Gifford V. Lewis, Old Dominion I. & N. W. Company, Richmond, Va.
Edward Ingalls, the Atha Tool Company, Newark, N. J.
Tom Almgill, G. & H. Barnett Company, Philadelphia, Pa.
D. W. Simpson, Wilcox Mfg. Company, Aurora, Ill.
Edward Kemp, Wabash Screen Door Company, Chicago, Ill.
E. G. Buckwell, Cleveland Twist Drill Company, Cleveland, Ohio.
George H. Bishop, George H. Bishop & Co., Lawrenceburg, Ind.

GRIEVANCE COMMITTEE.

Oliver Williams, chairman, Bryden Horse Shoe Company, Catasauqua, Pa.
Alfred W. Barnett, G. & H. Barnett Company, Philadelphia, Pa.
George H. Harper, Clendenin Brothers, Baltimore, Md.
W. T. Norton, Norton Tool Company, West Park, Ohio.
P. B. Noyes, Oneida Community, Limited, Kenwood, N. Y.

What Should Be the Policy of the Manufacturers in the Distribution of Their Products?

BY E. B. PIKE OF PIKE MFG. COMPANY, PIKE STATION, N. H.

The gentlemen of the Southern Hardware Jobbers' Association have asked me to make a brief address on "What Should be the Policy of the Manufacturers in the Distribution of Their Products?"

I suppose they expect me to tell them that we should depend entirely upon the jobber and that we should not sell our goods to the user, retailer or to the catalogue houses, but that we should do all of our business with and through the jobbing trade.

Well, gentlemen, I have had something like 40 years' experience in selling goods to the jobbing trade, and I have found it a mighty good trade to have. My experience has convinced me that the men doing business in the American wholesale Hardware trade are among the best business men in the world. As a class they are honorable, energetic, pushing and clean cut men. The great variety of goods they handle tends to make them broad minded and gives them wide experience. Then, remember, they have the inestimable advantage of close association with the Hardware manufacturer—in itself a liberal education—for next to the American Hardware jobber surely stands the American Hardware manufacturer, and these two representative types of American business men working

E. B. PIKE.

in unity constitute one of the strongest factors in the marvelous progress of American commerce.

AN IDEAL BUSINESS PURSUIT.

It seems to me that making and selling Hardware comes very near the ideal in the way of a business pursuit, for is it not after the plan that God adopted in making man? Not of cotton, nor of silk, nor of wool (not of flour or grain nor even of a new breakfast food) did He make him, but of the very earth itself from which we get the material for our Hardware.

Gentlemen of the Hardware trade, I think we are working in the right lines; we are at least working in harmony with nature, whether always in harmony with each other or not. I believe the Hardware business is in some respects an ideal business, and that men in it have every chance, at least, to be honest. They do not have to sell shoddy or adulterated articles, but they come very near getting their supply from nature itself—from the forests and mines of the earth. Now it would seem that having such a good start we ought to be able to adopt the right kind of policy in regard to distributing our products, and I think upon the whole we have done so. I believe it is the policy of the average manufacturer to depend upon the jobber to distribute his goods. Of course some mistakes have occurred, for even the best of us make mistakes, and some manufacturers have been foolish enough to sell their goods to retailers, some even to consumers and some have been so absolutely bad that they have sold to catalogue houses. But I think most of them have sooner or later come to realize and repent of their sins.

Of course, every line of goods cannot be handled in the same way. Manufacturers of machinery must necessarily sell a large portion of their product direct to the user, while manufacturers of such articles as Tacks and Screws would be very foolish to do so. Then a manufacturer of a

NEW LINE OF GOODS

must create a demand for them, and you know that many jobbers are very cautious, and have to be, in taking up the sale of an unknown line. So it sometimes becomes necessary for the manufacturer not only to sell to the retailer but to the consumer. I well remember that when I had the good fortune to represent the now world famed firm, the Enterprise Mfg. Company of Pennsylvania, in the introduction of Mrs. Pott's Sad Irons, some 30 years ago, we found it very difficult to get the jobber to buy them, and we had to send out men to sell them from house to house first, then to the retailer, and create a demand for them before we could get the jobber to buy them. The policy pursued by the Enterprise Mfg. Company was a just one; they sold the goods to the consumer at the consumer's price, to the retailer at the retailer's price, and to the jobber at the jobber's price; and between the consumer's and retailer's price there was a good margin, and between the retailer's and the jobber's price there was also a liberal margin. Now this is the kind of policy that I think the manufacturer should adopt in distributing his product.

THE MANUFACTURER MUST CREATE A DEMAND

for his goods before he can expect the jobber to buy them. In this work, however, the manufacturer should never fail to make prices to the retail trade that will enable the jobber to supply the demand, when created, at the same prices, with a fair margin of profit. On the other hand, if the jobber were more quick to recognize the difficulty which the manufacturer meets when endeavoring to introduce new goods or establish a reputation for his better grades, when confining his efforts to the wholesale trade exclusively, it might be possible that a greater part of the necessity of going direct to the retail trade would be removed; at any rate the work would be carried on with greater harmony and better results secured.

I think it should be

THE POLICY OF THE MANUFACTURER,

in the first place, to make the very best quality of goods in his line that can possibly be produced.

Second, I believe it is fully as important for him to make the trade understand that he is absolutely reliable and trustworthy.

Third, I think he should be very careful in the selection of salesmen to represent him; that he should send out only good, clean, straight, reliable men who know the line thoroughly and who will gain the confidence and respect of the buyers. I consider it very poor policy for any manufacturer to allow his line to be sold by any one who may want to carry it for a side line. The salesman should be able to tell the buyer all about the goods he is selling; about the material and the process of manufacture, what it will cost for special sizes or special packages; in fact, he should be able and ever ready to thoroughly inform the buyer all about the line he represents. It sometimes seems to me that manufacturers are careless with regard to their representatives, yet I would say in this connection that many of the ablest, manliest and most likable men I have ever known have been among the men I have met "on the road."

Fourth, the manufacturer should be a liberal advertiser. Of course, the kind of goods largely determines how they should be advertised. In our case we have found that it does not pay to advertise for the consumer to any extent, the purchase price of one article or the total purchases of one consumer being too small to warrant the expense; so we advertise for the buyer, leaving it to him and to the quality of our goods to create a demand for them. Just how much money shall be expended for advertising in the catalogues of our buyers

and how much space shall be taken in the programmes of the different associations each must decide for himself.

I remember when I was a boy of 16 I started out on the road to make my first trip selling goods, and I took with me an old fellow who was supposed to be the champion seller of Scythe Stones, and who was called "Silver Gray" or "Whetstone" Palmer. He was very bright and very smart, but he had the unfortunate habit of taking too much of the "oh-be-joyful," which made him rather talkative. At the first town where we stopped he met a professor, who was principal of a somewhat famous academy, and he told him he would like to place his son in his institution, where he would get able instruction such as this professor only could give him. He also told him that where his son was at that time he was getting into bad habits, one of which was that he was buying a good many peanuts and eating the shells and giving the other boys the meats. This story then impressed me as being very funny, but I have seen the point of it more in later years. We must not spend all of our money in one kind of advertising, for if we do we will find ourselves like the boy—we shall have given the other fellows the meats and be eating the shucks ourselves.

IT HAS BEEN PREDICTED

that the time would come when the same conditions would prevail in this country as now prevail largely throughout Europe. That is, that the manufacturer would distribute his goods through the factor or selling agent direct to the retailer and consumer; that there would be no longer any need of the Hardware jobber, therefore he would go out of existence. Gentlemen, I do not believe this condition will ever come about in this country; I believe it would be an unfortunate day for the manufacturer if it should. Where the manufacturer depends upon the factor or selling agent to distribute his goods he loses a great deal, because no matter how good the agent may be he cannot have the knowledge and interest in the line that the manufacturer himself or his direct representative will have. It would also be a great disadvantage to the manufacturer not to have stocks of his goods at different commercial centers. It would be a great annoyance and expense to have to sell in small lots and to collect from the consumer or retailer. It is a great advantage to the Hardware manufacturer to have such good paying customers as the wholesale Hardware merchants. I believe it is the safest trade in the world.

While the manufacturing and selling of Hardware is not absolute perfection in business it comes about as near to it as you could expect in a world of erring mortals, and the men now before me representing the Southern Hardware Jobbers are an evidence of what splendid men can be produced by such associations. No, gentlemen, we

WILL NEVER GIVE UP THE WHOLESALE HARDWARE MERCHANT.

He is our friend; we cannot live without him. We love him for what he has done for us in the past and for what we expect him to do for us in the future. We intend to treat him well and retain his good will and friendship and co-operate with him for mutual profit until the time comes when Hardware implements may be no longer needed, when "the elements shall melt with fervent heat" and the "new heavens and a new earth" appear, and each man shall rejoice in that which he has been able to do for his neighbor.

Price Guarantees.

BY CHARLES W. ASBURY OF ENTERPRISE MFG. COMPANY, PHILADELPHIA.

In opening this discussion it is my purpose, if possible, to follow the advice of John Graham in one of his letters to his son—that is, have something to say, say it, stop talking. If the subject of price guarantees be judged by individual experience I would have considerable hesitancy in enlarging upon it before a body of Southern jobbers for fear of leading them into the ways of evil, but the theory is advanced by some of my manufacturing friends that it is an insurance against evil to talk plainly of it.

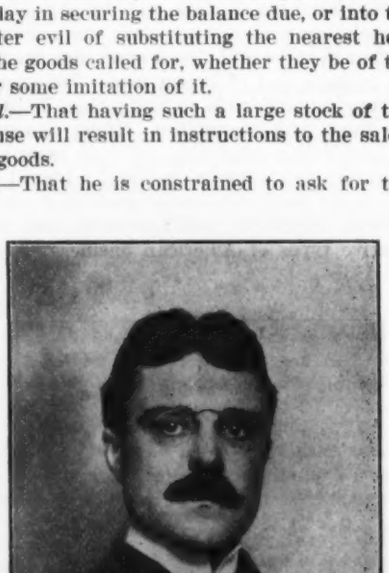
Without intending to apply a sugar coat to the gentlemen before me, but with the sole object of expressing a well deserved compliment, I say with all the force at my command that for fairness in the making and in the interpretation of contracts there is no body so representative as Southern merchants.

We must all admit that honesty is the best policy. Fairness is pre-eminently one of the cardinal virtues of honesty, and especially so in the purchase of goods. A buyer's request for a guarantee against decline in price is made with alluring argument.

First.—That the purchaser will have no fear in carrying a full and well assorted stock of the goods, and will thereby be enabled to fill all orders with promptness, and will not be forced to report to his customer that an assorted order could only be filled in part, or that there will be delay in securing the balance due, or into the other and greater evil of substituting the nearest he has in stock to the goods called for, whether they be of the make desired or some imitation of it.

Second.—That having such a large stock of the goods in the house will result in instructions to the salesmen to push the goods.

Third.—That he is constrained to ask for the guarantee because the competitors of the seller have adopted the policy of offering it.



CHARLES W. ASBURY.

The request itself is made in varying forms and consequently in degrees of evil. Sometimes that the guarantee cover the stock in the hands of the purchaser at the time of decline in price, sometimes that it be only on a specific quantity, perhaps smaller than the original purchase; sometimes for a specified time, dating from the time of purchase, and sometimes, if the goods be seasonable, to continue until the end of a season and settlement to be made at that time at the then ruling prices.

Applying the subject more directly to the

MANUFACTURE AND SALE OF HARDWARE,

I submit that it is manifestly unfair to ask the manufacturer to guarantee his prices against the uncertainties of the market when the manufacturer himself cannot cover on his supplies similarly. In the purchase of manufacturing supplies it is almost universal for the condition to be imposed that the buyer be the sole judge of the stability of the market, and when settling day comes to pay in accordance with the face of the contract irrespective of the strength or weakness of the market subsequent to the day of purchase.

I believe there are well authenticated instances of sellers being compelled to fill contracts upon which a guarantee has been given against decline in price, and that in so doing an absolute loss has been incurred, equivalent, indeed, to including with the shipment a quantity of currency, which loss, according to the ordinary ethics of business, must be recovered in some subsequent transaction.

It is not necessary to multiply words in criticism of such a course. I thoroughly believe we all agree in the statement that it is bad practice.

Of course I realize that the whole subject of price guarantees is very largely one upon which the manufacturers themselves should agree. It is purely a question of policy and is undoubtedly the result of competitive conditions, but the evil is to some extent chargeable to the inference (whether intended or not) given by some buyers that the guarantee is a necessary condition to the placing of an order with the manufacturer, because of a real or imaginary competitive condition among manufacturers.

I also thoroughly believe that the subject could not be a serious one for consideration if the buyers generally

WOULD ADHERE MORE CLOSELY TO THE TRUTH,

not departing from it even by inference. If the practice of guarantee in price could be eliminated in all commercial transactions it would unquestionably be of benefit to the trade at large, in that it would tend to a greater stability in the selling price all the way from the manufacturer through the various channels to the consumer. It surely cannot be claimed that wasted energy is of benefit to any one, yet, as stated above, if through an unforeseen decline a seller is compelled to fill an order at a loss, or even without profit, it is very clearly a case of wasted energy.

If the acts of all of us, whether individual or collective, could be credited in our favor, the net result would be greater benefits to all. I hope, however, that the discussion will be free, full and entirely frank, in order that we may all be advised of the consensus of opinion coming from those of other interests than our own.

Advantages and Disadvantages of Net Prices and Grouped Discounts as Against Uniform Lists and Discounts.

BY JOHN DONNAN OF W. S. DONNAN HARDWARE COMPANY, RICHMOND, VA.

Not since my connection with this association can I recall a time when our Executive Committee has requested one of its members to address you upon a subject less susceptible of being made interesting to an audience than the one upon which I am about to speak—namely, "The Advantages and Disadvantages of Net Prices and Grouped Discounts as Against Uniform Lists and Discounts." Yet there are many themes which although, in themselves uninteresting, are of the greatest importance, and I am free to say that not one that has ever been brought to the attention of this body has more food for thought or is of more practical value than the one now before us. It is one that should be of deep interest to the manufacturer; it is one of the most vital importance to the jobber; both are equally interested in reaching a correct solution, but to do so will require the best thought of this intelligent body, for there are many arguments that can be made pro and con.

While, personally, I have reached very decided conclusions, yet I can but remember that the question at issue is many sided, and I sincerely hope that, at the conclusion of my brief address, I may hear the subject discussed fully and freely in its many bearings.

It has always been a question to my mind whether the originators of some of the various lists and discounts intended them as compliments to, or punishments of, those of us who are compelled to use them daily. If as a compliment, it is only our due, for surely it is no conceit to say that the brain which, for 12 months, can master all the intricacies and details of our discount system would have been equally at home in the realms of astronomy, engineering, or any other department requiring the use of the higher mathematics; but if intended as a punishment a more cruel scheme of torture could never have been devised, for the daily mental wear and tear is terrific.

While I do not mean to intimate that there is anything in the jobbing Hardware business even suggestive of the Inferno, yet the lines which Dante wrote over the entrance to Hades: "Leave hope behind, ye who enter here," could, if written over our places of business, be very appropriately rendered, "Leave rest behind, ye who enter here."

But to our subject: In reflecting how to discuss it, I have thought best to divide the manufacturers into three different classes. To the first belong those who use no lists, but send us a long series of net prices, embracing every article in their catalogues. The second class are those who use different lists and grouped discounts for the same class of goods. The third class, those who use uniform lists and simpler discounts.

NET PRICES.

To the first class, or those who make net prices, I would state the following objections to their methods: One is that the buyer, in order to correctly make a comparison of prices, is compelled to work out to a net basis the quotations made by other factories quoting the same line by list and discount, and it is a world of trouble to be compelled to reduce the prices of factories quoting by list and discount to a net basis, in order to make a comparison of quotations; when, had no net prices been quoted, and had each factory used the same standard list, the buyer, at a glance, could have told which factory made the lowest quotation.

Again, should a jobber be requested by a retail Hard-

JOHN DONNAN.

ware dealer to make him a quotation on such goods as Levels and Pocket Rules, he is obliged to take an hour to figure out the series of net prices, in order to make the quotation intelligently; causing both loss of time and a very great probability of error, when, if all parties were using one standard list, such at $3 for a common 1-foot Rule, with a simple discount, such as 80 per cent., or 80 and 10 per cent., the jobber quoting could, in a moment, have written 70 per cent. or 75 per cent. from list, as the case might be, thus saving valuable time and liability to mistakes

DIFFERENT LISTS AND GROUPED DISCOUNTS.

In approaching the second class of manufacturers, those who make different lists and grouped discounts for the same class of goods, one almost feels as if he were again in the Eden Musée, and about to enter the chamber of horrors, the very remembrance of what he has experienced causing him to shudder; but the Hardware jobber is a man of steel and iron, and therefore should have nerve; so, if we are ever to be relieved from these nightmares of intricate calculations, we must grapple with our opponents right here and now, and, either by argument or persuasion, induce them to give us relief.

Our friends, the manufacturers of Strap and T-Hinges, are among this number. In this line we find a totally different list for each of the five different kinds of Hinges, with such discounts as 70 and 25 per cent. on Light Strap, 70, 10 and 25 per cent. on Heavy Strap, and 66 2-3 and 25 per cent. on Light T, with, say, four 10's and 5 per cent. on each beyond the print, and, to make matters still worse, on all sizes of Heavy Strap and

Extra Heavy T, over 5 inch, they, to complicate matters still more, list them by the pound, so that when we wish to reduce these goods to their net costs, for the use of our salesmen, the task is fearful.

But these manufacturers do not stop at Strap and T-Hinges; the same condition exists in their line of Butts. For example, on Loose Pin Wrought, No. 703, we find 60 and 25 per cent. print, and on No. 719, 60, 10 and 25 per cent., with three 10's and 5 per cent., or four 10's on each, beyond the print. So far, so good, but after we have patiently reduced everything in their line to a net basis, and sent out our changed sheets to our salesmen, worked out to the net prices at which we wish them to sell this line to the small trade, lo! one bright morning, we find on our desks a notice, stating that on May 15 the price on Butts and Strap and T-Hinges has changed, and, with as good grace as possible, we are compelled to figure how much, if any, is the difference between 70, 25, four 10's and 5 per cent., old cost, on Light Strap, and 80, 5 and three 10's, new cost; and 75, 10, 25, four 10's and 5 per cent., old cost on Heavy Strap, and 80, 20, 10 and three 10's, new cost.

This illustrates only a few of the many instances, for the same calculation has to be gone through with on Hinge Hasps, Crate Hinges, and the various kinds of Butts—all of the make of one class of factories. Many other lines of goods could be illustrated in the same way, but the line manufactured by the American Fork & Hoe Company will suffice.

This season one factory alone, from whom we purchase, had five different discounts for their line of Forks and 13 different discounts for their line of Handle Hoes. Nor did each line have a simple discount, but all grouped. To find out the costs to us on Regular Cotton Hoes alone, for season of 1902 over 1901, we had to figure the difference between 75, 7½, 30 and 5 per cent., and 70, 10, 10, 5, 2, and 40 per cent.

STANDARD LISTS AND SIMPLE DISCOUNTS.

Now, gentlemen, surely such a state of things ought not to exist; it is not worthy of us that it should. We have no objection to each kind of Hoe or each kind of Hinge having its respective list, but give us one discount, and of the simplest kind applying to all. It was so in the past, why not in the future? Those of you familiar with mythology well remember the 12 labors of Hercules; but, gentlemen, did he live in our day and were he called upon to chose between the 12 tasks assigned him, or to occupy the position of buyer and head of sales department in a modern up to date twentieth century Hardware establishment, he would quickly have declined the position, and, with a light and cheerful heart, have accepted his fate. A most natural question for the manufacturer to ask is, What, then, does the jobber wish? Without hesitation, so far as the speaker is concerned, the question is easily answered, and it is that we wish standard lists and simple discounts and for many reasons:

First, we of the South do business to a large extent in a different manner, and with a different class of trade, from both our Northern and Western friends. We, of course, sell to the retail Hardware trade, but to a large extent our business is transacted with what is known as the general storekeeper—a man that knows as little about lists and discounts, and has about as much use for them as the average Hardware jobber has for Greek and Hebrew—consequently 90 per cent. of the invoices we render and prices we give to our salesmen at which to sell are net. "But," says the manufacturer who sends out his net sheet, "you said you did not want net prices." Nor do we, as buyers, for while I said that 90 per cent. of our goods are invoiced net, yet when we buy we wish a standard list and a simple discount, so that at a glance we, who are familiar with the discount system, can see which factory is giving us the closest price on the same line, and thus easily figure out net costs for our salesmen, who sell the general storekeeper; while, at the same time, if we wish to quote the retail Hardware trade we can do so by list and discount.

Again it may be an advantage, and really makes no difference to the large jobbing houses of the North and West, who deal largely with the retail trade and sell to them at list and discount, that their discounts are complicated, but to us of the South it is of vital importance that the discount system should be simplified. Jobbers doing a business of $500,000 and over are sufficiently large to have their business divided into various departments. They have buyers and heads of the sales departments for the different lines they handle, and these gentlemen have ample time, when called upon by some salesman, to prove, when quoted upon some certain line, that 40, 20 and 10 per cent. is the same as 50, 10 and 4 per cent., or that 65, 10, 7½, 5 and 2½ per cent. is the equivalent of 33 1-3, 30, 25, 10, 7½, 5 and 2½ per cent. But with most of us of the South, whose business runs from $100,000 to $500,000, things are different; we are both our own buyers and heads of sales department, and consequently it is absolutely necessary that we should have our various lines simplified as much as possible, and have such standard lists as Common Carriage Bolts with a simple discount, such as 80 per cent., or Flat Head Iron Screws with a discount such as 90 per cent., so that if we are quoted we can at a glance know the state of the market.

WHY COMPLICATE DISCOUNTS?

Doubtless some of the larger jobbing houses will say that we have asked the manufacturers to make these discounts complicated to enable us to realize a better profit. Upon what ground do you make such a request? Even if you wish to sell by list and discount, instead of at a net price, are you afraid to give a simple discount to your salesman, such as 50 per cent. from the standard list, because you are fearful some competitor will instruct his salesman to go to 50 and 10 per cent., and being a simple discount, your customer will easily see that your competitor has gone 10 per cent. better? You know what your goods cost and the lowest price at which you are willing to sell them. Are you afraid to be frank and square, and state plainly and simply what is your bottom figure? Or do you hope that your competitor, while buying at the same list and grouped discounts, will, in selling the same line, instruct his salesmen to make a price of 50, 35, 20, 10 and 5 per cent., while you, thinking to be so much the keener merchant, instruct your salesman to sell the same article at 70, 20, 5 and 2½ per cent., all the time attempting to deceive your customer into the belief that you are the cheaper house, when in fact you are quoting identically the same price as your competitor? Do you think such devices fair and square to either your competitor or customer? Has it come to this pass that the Hardware trade of America have to resort to such schemes in order to sell their goods and make their line more profitable? I think not.

Again, how many of us have salesmen who, if they should receive a letter from their houses telling them to change Butts from 60, 25, 10, 10, 10, 10 and 5 to 75, 10, 10 and 10 per cent., would know where they stood? Consequently, as the larger proportion of the Southern salesmen make net figures to their general storekeeper trade, it is necessary that they should have net prices given them at which to sell, and to enable us, the heads of our sales departments, to give these net prices to our salesmen with as little trouble as possible, we must have standard lists and simple discounts to figure on, and when we wish to instruct our salesmen to sell the retail Hardware trade by list and discount, we still wish a standard list, with a simple discount, so that if goods advance we can write them, "Advance your selling price from 85 to 80 per cent.," and this would be simple enough for our most inexperienced salesman to understand.

I know I am trespassing too much upon your valuable time, but before I close allow me to anticipate a question which the manufacturers will, naturally, propound. It is this:

CAN A STANDARD LIST AND A SIMPLE DISCOUNT BE MADE PRACTICABLE WHERE VARIOUS QUALITIES OF THE SAME CLASS OF GOODS ARE QUOTED?

In reply I again unhesitatingly say yes. One of the most satisfactory lists to my mind is that of Files. The various grades—Nicholson, Disston and Black Diamond—are all sold by one standard list, and each grade at its respective discount; and, while there is a slight grouping, such as 70, 10 and 10 per cent., yet the grouping is simple and easy to figure out.

It is so that I would make Handle Hoes, Strap and

Tee Hinges, and many other lines. Make your different lists for the various kinds and sizes, but, gentlemen of the Manufacturers' Association, do give us one discount that will apply to the whole line. Group your discounts a little, if you choose, to give yourself a margin in which to rise and fall, but if you value and think of us as your friends, and wish each year to meet and welcome us sound, both in body and mind, then come to our rescue and give us relief. Bound as we are to our desks, month in and month out, from early morn to dewy eve, with no opportunity afforded to indulge ourselves in the delights of afternoon drives and strolls with our wives and sweethearts, as long as this condition exists we are each a Prometheus, chained to a rock, and you, gentlemen of the Manufacturers' Association, are the Hercules who can release us. We plead with you to do so, and, in return, we will provide the way for you to gather the golden apples of Hesperides.

Salesmanship—Some Definitions Quoted and Thoughts Expressed by an Office Man.

BY L. D. VOGEL OF THE CHARTER OAK STOVE & RANGE COMPANY, ST. LOUIS.

The purpose of this meeting is, as I understand it, to become better acquainted through personal contact and social intercourse, to discuss and, if possible, remove such obstacles as have proven impediments to satisfactory and lucrative business. It seems to me these gatherings of Southern Hardware jobbers and the manufacturers and their representatives should be regarded by all in the light of a reunion of a business family, of which we all are members. If we can impress upon each other the fact that our interests are mutual, we will feel when we say good-by that the time has not only been pleasantly but well spent. Feeling, as I do, that it is incumbent upon each of us to at least make an effort toward contributing some food for thought, I will venture on a subject that will, I hope, interest all of you.

It will perhaps suggest itself to you that an office man, such as I am and always have been, should choose some subject which experience would qualify him better to discuss. If any apology is needed for my treading on this ground I want to make it right now, so that I may at least have your unbiased attention and consideration.

I recognize and appreciate the fact that this gathering embraces men fitted by nature and schooled by experience for salesmanship, and others who are proprietors and sales managers, men of judgment, who, through their contact with salesmen, are well posted on the question of what constitutes a good one. And I am not egotistic enough to presume that I can tell the salesmen anything new about their avocation, or to impart any information to those who engage salesmen that will be of substantial use to them.

If, however, I can impress upon the salesmen, the managers and the buyers here present what I feel—namely, that the salesman is one of the most important, if not the most important, wheels in the machinery of business—it will be a gratification to me, because a salesman must feel that he is doing an important work to meet with a full measure of success, and his employer must recognize his importance in order to deal with him in the right spirit.

GOOD SALESMANSHIP

is so essential to all lines of business, and so worthy of intelligent study and execution, that the calling, to my mind, is lifted to the dignity of a profession. First, let me say that the definitions of salesmanship which I shall offer are not my own, but quotations from what I have read; and, coming as they do from salesmen of experience who have been successful, they are entitled to respectful consideration.

Thinking it will add to their interest, I will explain that some months ago a prominent magazine devoted to the subject of advertising offered a prize of $25 for the best definition of "Salesmanship." Many replies were received, and copies of them, with the names of contestants, were placed in the hands of J. B. McMahon, vice-president and sales manager of the N. K. Fairbank Company, who consented to act as judge. He awarded the prize to the following, as embracing the most essential qualifications of a good salesman:

Salesmanship is the quality in a man—partly inherent, partly acquired—whereby he is able to successfully introduce, interest in and sell a prospective customer any article or commodity.

I will quote a few others, which impressed me as being particularly good, and which I singled out of many and copied:

The ability to sell goods, or other property, in a straightforward manner, with satisfaction to all concerned and with the least expenditure of time and money, but having always chiefly in view the benefit to be derived by the person for whom the property is sold.

Another:

Salesmanship is that quality in a salesman which enables him, in the shortest space of time, to place in the possession of his customer the greatest amount of satisfactory merchandise, and in the coffers of his employers the greatest amount of profits; while at the same time preserving the lasting good will and respect of his customer.

Bear in mind, please, that a salesman is not in the salesmanship class, according to this authority, unless he can both make a profit for his employer and preserve the lasting respect and good will of the customers.

Another definition that, it seems to me, contains many good points is as follows:

Salesmanship is the science of putting into each day's work honesty in speech, loyalty to employer, the hustle of modern civilization, of watching your weak points, of strengthening them, of not only keeping your customers but gaining new ones, of being at all times a gentleman.

It has been my pleasure to meet many salesmen—in our office, during my travels, and at the jobbers' and manufacturers' conventions—and a more courteous and pleasant lot of gentlemen it has never been my pleasure to become acquainted with. It is a universally recognized fact that the standard of salesmen has been greatly elevated with the march of time—as to character, ability and intelligence—in proof of which it is not necessary to refer to any other fact than that men not possessing these qualifications cannot find room in the ranks of any reputable firm's traveling force. Furthermore, many of our largest and most successful business firms are composed of and manged by former traveling men.

I will tax your patience with one more quotation, and this one, to my mind, is as true and good as it is terse:

Salesmanship is ability to make sales; its attributes are health, honesty, courtesy, tact, resource, reserve power, facility of expression, a firm and unshakable confidence in one's self, a thorough knowledge of and confidence in the goods one is selling.

Certainly, none of us will deny that a good salesman must know his goods so well and have such confidence in them that he can convince the merchant that he needs the goods; then he must enthuse him in such a way that, after he does purchase them, he will push them.

Permit me to add that, in addition to the qualifications named in the definitions quoted, if a man is fortunate enough to possess in a marked degree the following he has, in my opinion, the qualities which go to make up what some men term a "crackerjack": Prudence, magnetism, ability to gain confidence, the art of reading human nature, judgment to comprehend a customer; in other words, the faculty of a quick perception of character.

It has been said that the eye photographs impressions on the mind instantly. Pleasing impressions are always strongest and most lasting; therefore, it is wise for the salesman to attain the strong combination of good dress and good manners, coupled with sincerity, which latter is indispensable to lasting success. A well groomed, courteous personality attracts, sincerity convinces. Cheerfulness is a valuable element in salesmanship; people like it—it appeals to them.

CREDITS

A good judgment as regards credits, while mentioned last, is by no means the least of the desirable qualifications for salesmanship.

Competition is keen; there is a great anxiety to do business. Firms employ salesmen for that purpose, so they are anxious to make sales and make them as large

as possible. It never did require much capital to start a store. A merchant should not have all his capital on his books, as he can never figure on prompt collections, but is always asked to meet his maturing bills.

It is certainly wise for the salesman to study the credit feature, to get all the information possible on the point and to impart it to his firm in detail, whether good, bad or indifferent. There is no information that a credit man values higher or that is of more assistance to him in determining upon credits, collections or extensions than that obtained from a traveling salesman. I speak from experience on this point.

Coming in personal contact with the merchant, the salesman can form an estimate of his qualifications for success, his character, ability and condition and extent of his stock, the way he handles his customers, the trade and crop conditions prevailing in the section where he does business. A knowledge of these particulars should be studiously sought after by the salesman and transmitted to the firm he represents. He should express his opinion fully and state on what he bases it. It is a fact that it is the prevailing opinion that few traveling men have the ingenuity or take the trouble necessary to equip themselves as good judges of credits. I have always asked our men to give this their best thought; a hazardous account is worse than none—to be ever watchful of a man's condition—whether it be a new customer or one of long standing, for some of our greatest losses have been with customers of long standing, whose condition has changed with time.

The value of the service of any man, be he traveler or office man, is measured by the net results of such service, and certainly the losses on a man's sales are an important factor.

Quoting from the sayings of a wise man, "The principal thing to strive for is wisdom." Next to that the thing we are all working for is the almighty dollar. The salesman is human, he wants his share, and the employer who does not cheerfully give it to him makes a mistake.

FIRST-CLASS SALESMEN NOT NUMEROUS.

Little difficulty is experienced in producing satisfactory clerks in the evolution that takes place from the time a lad begins his business experience in the position of office boy, advancing in rotation—if he is of the right stuff—as vacancies in higher and more responsible positions occur. But few of them develop the characteristics and tact necessary to give them entrance into the ranks of salesmen, and fewer still can ever be classed as particularly successful salesmen. We can advertise for a clerk for most any department of our business and obtain enough responses to enable us to select a suitable person.

But our experience, and that of many business men that I have spoken with on the subject is, that first-class salesmen are not so numerous and are difficult to obtain; therefore, the employer who has a satisfactory force of salesmen is to be congratulated and it behooves him to make them satisfied as well as satisfactory.

There is no royal road to success in any vocation. Industry, capacity, power of adaptation, the ability to put forth what is in us, the faculty of utilizing our gifts will bring success. In the vast majority of failures there is a lack of motive power, a disposition to take it easy.

THE EASIEST WAY TO COURT FAILURE

is not to strive for success. The qualities which bring success to men in their chosen vocations are the qualities which make it possible for such men to make their way into those vocations. The man with ability and grit will succeed. The man who does not get discouraged easily is the boss of the man who does. Enthusiasm is something that cannot be bought, because it is priceless.

Opportunities come often in disguise and disclose their possibilities only when a man has made them expand by the force of his zeal and thoroughness. It has been written that "A pound of energy with an ounce of talent will achieve greater results than a pound of talent with an ounce of energy."

TRAVELING MEN THEIR HEAVIEST EXPENSE.

Speaking for our firm, I will say the salaries and traveling expenses of our traveling men are the largest items of our annual expense account. Practically, the question of whether our business shall show a profit or a loss hinges upon that. We must rely, therefore, upon the ambition of our salesmen to lead them to make strong efforts to reach a larger volume of sales and keep their traveling expenses as low as consistent with the representation of our firm, and, as a consequence, pave the way to a better salary for themselves.

In conclusion, I will quote for the salesmen, one verse from a poem by Sabin:

Success shall come to him who waits;
But not to him of folded hands—
To him who hopes but hesitates,
And simply by the roadside stands.
Success is won by effort strong;
By unremitting, earnest stress.
The way it travels seems o'er long?
To haste its course, go meet Success.

To the employer it is not well to quote poetry—it's not what he wants. His desire is for profitable business. He can do much to help the salesman meet Success.

HOUSE MUST AID SALESMEN.

A salesman's efforts can be supplemented by the firm employing him. Proper attention and treatment of the customer by the house will certainly strengthen their position. There are so many ways. Setting aside the question of equipping a man with saleable goods and proper prices, the attention an account receives by the firm in any and all of the departments of a business has a vast influence on the efforts of a salesman. Modern and thorough business methods suggest so many excellent ways of doing what is right and proper that it must be a careless man indeed who does not give this subject thought and action.

And the house should not only give attention to those that the traveler sells, but those as well on whom he calls and does not sell. It is certainly important to give attention to prospective customers, and the firm can often put on the final touch needed to supplement the efforts of the salesman and open up a desirable account.

I have no doubt most if not all of the manufacturers here have their business so systematized as to lend every support to their salesmen, but I know of some who are not here that have not.

TO THE BUYER

I will only say: The traveling salesman, if he is a gentleman and has not proven himself unworthy of your confidence, deserves courteous treatment and all the encouragement you can afford to give him. He calls on you because it is his business and, in most cases, his pleasure also. There can be cited plenty of cases in which the buyer suffered more by discourtesy than the salesman against whom it was directed, whether thoughtlessly or intentionally.

To all three—employer, salesman and buyer—I offer my apology for taking up so much of their time. It may be a consolation to you to know that I have not written half of what I have thought on the subject. Should any of the employers conclude that I have indulged too much in generalities and have offered nothing entitled to any thought, I invite them to call on me whenever they are in St. Louis. Perhaps an exchange of experiences and a comparison of methods will prove mutually beneficial and make this effort to interest seem to have more substance.

The Twentieth Century Distributer, His Relations to the Jobber and Manufacturer.

BY C. M. FOUCHE, CRUCIBLE STEEL COMPANY OF AMERICA, CHATTANOOGA, TENN.

I approach this subject with the greatest diffidence and trepidation, because my ideas as to who or what the "Twentieth Century Distributer" is are decidedly vague and indefinite.

A PUZZLE.

As soon as I was notified by your efficient secretary that I had been selected as one of the victims to air my opinions upon this subject I immediately began to cudgel my "think tank" to see if I could arrive at a definite conclusion as to what the Executive Committee of this

association meant by the expression "Twentieth Century Distributer," but after weeks of earnest and honest effort in this direction I found that I had reached no less than seven different conclusions in the premises; each one of them being entirely at variance with the other. I then concluded to call to my aid all my friends of the Hardware fraternity who were within easy reach, and to propound to each the burning question, Who in thunder is the Twentieth Century Distributer?

Each one of these gentlemen thus approached answered, after due deliberation, about as follows: The jobber; the retailer; the manufacturer's representative; the department house; the large jobber who sells the smaller ones; the manufacturer who sells the consumer direct; and the manufacturer of a certain agricultural implement very gravely assured me that the Executive Committee certainly had in mind his celebrated Guano Distributer when they selected this subject for my address.

Finally, in despair of ever arriving at a satisfactory solution of the question, I decided to call upon the Executive Committee itself, the authors of this Chinese puz-

C. M. FOUCHE.

zle, for an authoritative explanation as to what was meant by the term "Twentieth Century Distributer." Here I soon found ready and unhesitating answers to my query. Each one of this august and reverend body gave me an entirely different answer. By the time I succeeded in reaching this stage of the game remorseless time, fierce spirit of the glass and scythe, had rolled around to Saturday, July 10. I had not been able to "think a thunk" upon my subject, much less to write an address upon it. Desperation seized upon me then, for I was already committed to my friends of *The Iron Age, American Artisan* and other periodicals to furnish them with advance copies of my address in time for publication on the 16th inst. It would irk me much to disappoint these good and true friends, and through them their thousands of readers, who would thereby be deprived of the brilliant corruscations of wit and wisdom which are wont to flow from this fertile and facile pen. But alas and alack! What am I to do unless the identity of this "Twentieth Century Distributer"—this "Man with the Iron Mask"—can be disclosed. It will avail me little to be able to exclaim with Macbeth, "Shake not thy gory locks at me; thou canst not say 'twas I that did it," but it is a solemn and honest fact that my failure to prepare myself on this theme is solely and entirely due to the fact that the Executive Committee of this association has assigned to me a subject which no single one of them defines in the same way.

The question as to who the "Twentieth Century Distributer" really is will probably go down to posterity for solution along with the Chinese puzzle, "Pigs in Clover," "The Sphinx," "The Gordian Knot," "The Lady or the Tiger" and similar riddles and puzzles which have placed many good men in straitjackets, to say nothing of untimely graves in trying to solve them.

IT IS WELL FOR THIS ASSOCIATION

that I have neither the time nor the inclination to take up this question in all the various aspects which are presented by the definitions given of the term "Twentieth Century Distributer" by the members of the Executive Committee and of this association. I could discourse at great length upon each one of the "distributers" so presented—be he the big jobber or the little jobber, the manufacturer or the manufacturer's representative, the department store, the retailer or even the Guano Distributer.

The very brief time now left to me in which to air my views on some branch of the question has forced me in desperation to fall back upon my boyhood scheme for deciding unsettled questions—drawing straws to see who and what the "Twentieth Century Distributer" is. So here goes:

I have marked upon seven separate slips the names which have been suggested to me by the partisans of each distributer, placing my choice of the lot—the jobber—upon the longest slip and the department store upon the shortest one. I have shaken them up in my hat, closed my eyes and proceeded to "make a draw." With my usual luck at all games of chance it proves to be a "bobtail flush," for I have drawn the department store.

Having decided to abide by the arbitrament of chance I cannot now in good conscience refuse to accept its decision, and must perforce take the department store as my Twentieth Century Distributer and impose upon you my views as to its desirability as a distributer.

WHEN THE DEPARTMENT STORE FIRST APPEARED

on the scene of action its business was confined to lines of the same general class, such as dry goods, notions, clothing, boots and shoes, hats and caps, carpets and furniture, &c.; but the scope of its business has been gradually enlarged and extended until it now includes everything from a concert grand piano to a paper of Tacks, and from bolts of priceless silks and laces to pounds of sugar and crackers.

I can well remember that it was freely and confidently predicted by all the jobbers and retailers whose lines were taken up by these department stores that the business would be a failure, because no one house could hope to handle a dozen different lines with the same intelligence and efficiency that houses which only carried one line could. We have all seen this prediction come to naught, because the big department stores have long since grown to such proportions that they can afford to employ from one to a dozen experts in each line they handle, thus making each department complete within itself. The department house is here to stay, and it therefore behooves our jobbing friends to prepare for the irrepressible conflict.

So long as these houses can buy from the manufacturer such enormous quantities of goods there will always be found some weak brother who cannot resist the temptation to sell them at as low, or lower prices than they offer the regular jobber. When this is done the floodgates are open, for there is nothing more certain than that the department store will sell these goods to the consumer at practically the same prices as the jobber can sell to the retailer, and frequently for even less. I can think of no cure for this order of things save a concerted movement upon the part of the jobbers to prevent the manufacturers from selling the products to department houses at prices which enable them to sell the consumer at jobbers' prices.

I am sorry to say that the

JOBBERS THEMSELVES ARE LARGELY RESPONSIBLE

for the existence of the department store. Overproduction is the parent of these stores, and the new mills and factories which overstock the market with their products are largely brought into existence by the jobbers, who encourage them to go into business in order to secure lower prices. It is my opinion that the jobber makes a serious mistake when he tries to make a manufacturer sell his products at less than a fair profit, but I know only too well by personal experience that they often do this. When it is thought that the manufacturer is making too much profit our jobbing friends will urge embryo manufacturers, with more money than brains, to go into the business, and we soon have overproduction and the

resultant seeking after markets by the manufacturer who cannot dispose of his goods through the regular channels.

The business of the department store has been largely built up by their being able to take advantage of the necessities of manufacturers who ought never to have been in business. If these factories had never been encouraged by jobbers they would never have existed.

I WOULD SUGGEST AS A REMEDY

for the trouble that is now upon you, and which is constantly growing, that the jobbers adhere in their purchases to well known and reputable manufacturers, and push the sale of their goods to the exclusion of all others. If you will remain true to the manufacturer you will find that he will be true to you. He will also doubtless be willing to protect you on his goods from the encroachment of the department houses by naming them such prices as will not enable them to sell goods to consumers and retailers at jobbers' prices. So long as the jobber changes from old and well-known factories to new and untried ones, solely on account of a slight difference in price, just so long will these manufacturers sell their goods to whoever will buy, be they department store or jobber.

I do not believe there is a manufacturer at present at this meeting who does not prefer the jobber as a distributer of his goods to the department store. For this reason I feel assured that if concerted action is taken by the members of this and the National Association, looking to an agreement on the one hand to handle the goods of these manufacturers exclusively, and on the other to maintain a certain difference in prices between the jobber and the manufacturer, it would be well.

I cannot close these rambling and somewhat incoherent remarks on the Twentieth Century Distributer without at least a passing reference to the individuals who distribute the goods of the manufacturers among the jobbers and large supply houses. I refer to the manufacturers' representatives.

Time was when the manufacturer did not deem it necessary to employ any better material for the purpose of disposing of his goods than could be found in the ranks of village clerks and apprentices, and at a pinch even the the office boy could be pressed into the service to do duty as a traveling salesman; but sharp competition and evolution in business methods have wrought a change in this, and no up to date, intelligent manufacturer will employ anything but the very best talent obtainable for the purpose of representing him on the road.

THE IDEAL REPRESENTATIVE

is one who can command at all times the respect, confidence and, if possible, the affection of both his employers and his customers. To command these it is necessary that he should possess character, ability and personal characteristics which would enable him to fill successfully any position in life, from a clerkship in a country store to the presidency of a bank, or even of the United States.

I see before me in this meeting the faces of many traveling salesmen who measure fully up to the standard I have named, and whose abilities have been proven by their success in securing and retaining a large trade for years.

The most perfect confidence should exist between the jobber and the manufacturer's representative, for without this there can be no community of interest, which is so essential in the relations between buyer and seller.

The salesman should be at all times judicial and impartial, never allowing his personal feelings or interest to sway him from the path of fairness and justice. He should never allow himself to be influenced to do an unfair thing on the one hand by fear of loss of the customer's trade, or on the other by the fact that he is the paid employee of the seller.

In all matters affecting both customer and employer he should occupy the position of the just and impartial judge, leaning neither to one side nor the other, but deciding every question with fairness and justice.

So far as his moral obligation is concerned, he is equally dependent upon his employer and his customer, for his value to the former depends entirely upon his ability to command the trade of the latter, and his wage is measured by the amount and character of his sales.

IT WOULD BE MUCH BETTER FOR BOTH BUYER AND SELLER

if there was more confidence exhibited by each toward the other. The buyer who habitually views the salesman with suspicion and distrust, and whose attitude is always that of the man who expects to be taken advantage of, very rarely fails to have his suspicions verified, for nothing is more certain in human nature than that the suspected man will sooner or later grow weary of being distrusted without cause, and will endeavor to give his suspicious friend a dig under the ribs.

On the other hand, no salesman who would be so base an ingrate as to take advantage of the confidence and trust reposed in him by a buyer could expect to remain long in the ranks of the manufacturers' representatives.

If we would only bring about an era of confidence and mutuality of interest between buyer and seller, which would make our business relations more in the nature of a joint stock association, it would certainly result in the greatest benefit to both, and would furthermore make it impossible for rank outsiders to come into the field and play havoc with legitimate business enterprises, as has been done in the past.

I have certainly imposed upon both your patience and good nature to such an extent that I am fearful most of my auditors will wish I had put into my hat and drawn a blank instead of the Department Store when I concluded to search for the Twentieth Century Distributer by submitting the question to the arbitrament of chance.

The Knight of the Grip.

BY W. P. SMITH OF MEAD & SMITH, NEW YORK CITY.

A genius of American production, scarcely half a century old, but mighty in point of numbers and influence. No longer ago than the early seventies he was rarely seen. To-day if there was a railroad passenger train in this broad land that was not lighted up by his cheerful countenance and made jolly by his jokes and smiles the conductor would conclude that some evil spirit had taken possession of his train, and the Pullman porter would send in his resignation at the end of his run.

No sooner does the march of civilization's conquering hosts force back the savage into deeper and wilder jungles of nature's forests than the irrepressible "Knight" looms up, not as an unknown, but as a remarkably well known quantity. He is the most cosmopolitan of earth's millions. Go not only to every city, town and hamlet throughout Uncle Sam's domains, but go if you please to Europe, Asia and the islands of the sea, and you will find him working as industriously to sell Ice Machines and Ice Cream Freezers in the frozen plains of Siberia as he is in selling Well Boring Machines and Wind Mill Pumps in the Desert of Sahara. He cares nothing for the partition of China as long as he is allowed the privilege of working the territory that is being partitioned. He cares nothing as to Russia closing the open door of Manchuria so long as he is permitted to enter at the back door.

HIS ADAPTABILITY

makes him at home wherever he chances to hang his hat, and his versatility makes him a welcome visitor throughout the globe. He is the embodiment of energy, the master of patience, the destroyer of provincialism, the advance guard of civilization. He can discuss the question of election, foreordination or predestination with the church deacon with as much earnestness as he discusses the probable chances of the next Presidential candidate of his party's choice. He can inform you of the extent of havoc which will be wrought upon this season's cotton crop by reason of boll worm, boll weevil or caterpillar as accurately as he can point out the baseball team who will win the pennant in the big league, or the "also rans" in the coming races.

He soons learns that

INTEGRITY AND CONSCIENCE

are the essential ingredients of a successful career and that the present business world has no room for the dishonest or the untruthful. Love of home and family is with him stronger than with any other class of men. The old aphorism "absence makes the heart grow

fonder" finds its fullest exemplification in his ranks.

To the manufacturer present, he is your pillar of cloud by day, your pillar of fire by night. He rejoices when you rejoice, he weeps when you weep. Your success in his success and your failure is his ruin. Therefore take him into your confidence and give him the best you have to offer, and remember if he sometimes gives the extra to one whom you nave not authorized he gives it to one who deserved it—to your customer and his friend.

To the jobber present, give him a patient hearing. Don't be too much absorbed to listen to what he has to say. If you are not interested to-day he will tell you something which will be of value as the days go by. Don't put him off until you have attended to every other duty and expect him to see you at 5 o'clock p.m. He has engagements with three of your neighbors at that hour already. His time is valuable; he has a wife and family at the end of the road, and is laboring strenuously to reach there by Saturday night. Besides, his best bargains are always given to the first customer.

LASTLY, GIVE HIM ALL THE ORDERS YOU CAN.

Place yourself in his hands and your leaf will not wither, but whatever you doeth will prosper.

Now, in conclusion,

Could I drink of the nectar the gods only can,
I would fill up the glass to the brim
And drink the success of the traveling man,
And the house represented by him.

And could I tincture this glorious draught
With his smiles as I think of him then,
Of the jokes he has told and the laughs he has laughed,
I would fill up the goblet again.

And drink to the wife with the babe on her knee
As she waits his returning in vain,
And breaks his brief letters with trembling hand,
And reads them again and again.

I would drink to the feeble old mother, who sits
By the warm fireside of her son,
And murmurs and weeps o'er the stockings she knits,
While she thinks of the wandering one.

I would drink to the stranger and friends
Who have met him with smiles and good cheer,
To the welcoming hands that good fellows extend
To the wayfarer journeying here.

And at last, when he turns from his earthly abode,
And pays the last fare that he can,
Mine Host of the Inn at the end of the road
Will welcome the traveling man.

RETAIL HARDWARE DEALERS' MUTUAL FIRE INSURANCE COMPANY OF MINNESOTA.

THE following statement of the business of the Retail Hardware Dealers' Mutual Fire Insurance Company of Minnesota has just been issued:

Receipts to June 30, 1903.

Cash on hand December 31	$17,484.37
Premiums to June 30	15,058.29
Interest	212.50
Total	$32,755.16

Disbursements.

Adjusting losses	$81.77
Rent	36.25
Postage	102.62
Taxes	265.67
Advertising, printing and stationery	302.11
Salaries	535.00
Returned premium on expirations	96.52
Directors' expenses and per diem	335.97
General office expenses	355.92
Expense	$2,111.83
Cancellations	168.83
Losses	2,466.26
Cash on hand	28,008.24
Total	$32,755.16

The insurance in force on June 30 is put down at $1,079,007.

This company have been organized for the benefit of the retail Hardware trade of Minnesota, and for retail dealers in other States who are members of State Hardware associations. They are now in their fourth year and have, they state, won their way to the confidence of conservative Hardwaremen, those who first placed insurance with them being their most enthusiastic supporters. The company point out that not only has a return premium of 25 per cent. been paid on every expired policy, but each year a substantial addition has been made to the surplus. M. S. Mathews, secretary, 323 Boston Block, Minneapolis, will be pleased to answer any inquiries in regard to the company.

U. M. C. COMPANY'S NEW PRESIDENT.

WILLIAM J. BRUFF was elected president of the Union Metallic Cartridge Company, Bridgeport, Conn., at a recent meeting of the Board of Directors, succeeding the late Marcellus Hartley, who died some time since. Mr. Bruff is general manager of the M. Hartley Company. He has been vice-president of the Union Metallic Cartridge Company for 12 years and connected with the Union Metallic Cartridge Company, M. Hartley Company and Remington Arms Company for over 30 years.

THE AMMUNITION USED AT BISLEY.

IT is cause for much satisfaction to the manufacturers and a source of gratification to riflemen and sportsmen that the Palma Trophy was recaptured at Bisley last week largely through the character of the ammunition used by the American team. Heretofore expert riflemen have usually insisted, each for himself, on loading his own shells, but this time the contract was taken by the Union Metallic Cartridge Company, Bridgeport, Conn., and 313-317 Broadway, New York, for their Machine Loaded Shells, which were of 30-40 caliber, for use in the Krag-Jorgensen Rifles, made at the United States Government Arsenal, Springfield, Mass. W. M. Thomas, Chief Inspector for the Union Metallic Cartridge Company, superintended its manufacture, and he accompanied the team to England, to be present at the match, the entire team using this ammunition, both at practice and in the match. The team took this ammunition, which they paid for, in preference to the Government ammunition, which would have been furnished gratis. This is regarded by experts as proof of the perfection to which American arms and ammunition have been brought, the main feature being the absolute confidence the men had in both arms and ammunition. The particular merit of this ammunition, aside from the extreme accuracy of loading, is in the Thomas bullet, which gets its name from the company's inspector referred to above.

A RAILWAY TIME TABLE ADVERTISEMENT.

A. M. Matthews & Co., Orange Valley, N. J., being located next to the railway station, where a large number of New York commuters meet night and morning, have hit upon a novel and inexpensive method of keeping their name before the public. They issue an advertisement in the form of a small folder, on one side of which is a time table showing all local trains and on the other timely and seasonable advertising matter, telling of the goods for sale in their store. A new edition of the table, with new advertising matter, is gotten out each time that the time table is changed. Many commuters prefer to carry the Matthews table because it is more convenient to refer to than the larger and more bulky one issued by the railway company.

THE contract for supplying the Hardware for the Federal Post Office Building at Butte, Mont., has been awarded to the Anaconda Copper Mining Company of Butte, which company in turn placed the order with Sargent & Co., New Haven, Conn., through their Chicago branch, Edwin L. Downs, manager.

The store of J. D. Jewett & Co., Hardware dealers, on Washington street, Boston, Mass., was damaged to the extent of several thousand dollars by fire July 9.

AN INTERESTING DECISION.

SOME four years ago suit was brought by the Enterprise Mfg. Company of Philadelphia against Landers, Frary & Clark, New Britain, Conn., to restrain them from putting on the market a line of Coffee Mills, which were described as practically identical in general appearance with the Enterprise Mills. A decision in this interesting case was rendered July 1 by Justice Platt in the United States Circuit Court of the District of Connecticut, which, in view of the general interest of the question involved, we give in full below. We are advised by Landers, Frary & Clark that they will appeal the case to a higher court:

THE TEXT OF THE DECISION.

Since 1866 the complainant and its predecessor have been continuously engaged in the city of Philadelphia in the manufacture of Hardware. The complainant succeeded to the business of its predecessor, Enterprise Manufacturing Company of Pennsylvania, in the year 1893. During the year 1874 its predecessor commenced the manufacture and sale of a line of Coffee Mills of varying sizes, adopting therefor a certain characteristic shape, design, color and ornamentation. Said Coffee Mills, which have been continuously and uniformly numbered 0, 1, 2, 3, 5, 7 and 9, according to size, have since 1874 been manufactured by the complainant and its predecessor, and sold in large numbers, reaching about $75,000 during the year just prior to this suit.

The characteristic shape, design, color and ornamentation originally adopted for said Coffee Mills have been retained without change to the present day, others sizes with different numbers being added from time to time. Nearly all of the Mills are of the same type and have the same characteristic shape and appearance, varying only in size, the Mills have fly wheels of a particular design and being finished in red and blue, with decorations in gilt and colors. Nos. 0 and 1 are without fly wheels, and are finished in black, with decorations in gilt and colors. Samples of Nos. 0 to 9, inclusive, are in evidence.

In 1876 the complainant's predecessor also commenced the manufacture of a set of Mills numbered 2½, 4, 6, 8, 10, 14, 16 and 18, whose shape, design and color, decoration and general appearance differ in no wise from the Mills heretofore mentioned, save that a nickel plated hopper is substituted for the hopper of the other Mills. The sale of this line of Mills has been continuous and the appearance has remained the same throughout. Other sizes with other numbers have likewise been added. A specimen of No. 2½ is in evidence as a sample of this line of Mills.

A specimen of complainant's Mills introduced in evidence are the important selling sizes, and they show the shape, design, coloring and decoration of the entire line of complainant's Coffee Mills.

The complainant's Mills, which are known throughout the trade as "Enterprise" Mills, have attained a very high reputation, and are the leading Coffee Mills on the market. The long continued and uninterrupted use by complainant and its predecessor, without change, of the characteristic shape, design, coloring and decoration of said Mills have caused the characteristic appearance of the Enterprise Mills to be well known to the trade, and Enterprise Mills are recognized by the trade by reason of their unique appearance.

Defendant, shortly before the filing of the bill in this case, after examining complainant's line of Coffee Mills, concluded to enter for the first time upon the manufacture of the same line of Hardware, and sell in competition with complainant.

The defendant therefore commenced the manufacture of Coffee Mills, using parts of Mills sold by the plaintiff as patterns wherever it was convenient or profitable to do so. It is now making and selling Coffee Mills which in all substantial respects are the same goods as those made and sold by the plaintiff, and intends to make other Mills with the later style of hopper, which will be substantially the same goods as those made and sold by the plaintiff.

Defendant has placed upon its Mills, so produced and sold, the numbers 01, 11, 20, 30, 50, 70 and 90, in every case affixing the number to a size of Mill which corresponds with the Mill of the plaintiff which bears the number 0, 1, 2, 3, 5, 7 and 9.

On the Mills numbered 0 and 1 the plaintiff places its initials and address upon the base, and in the other sizes its name and address upon the periphery of the fly wheel, through which power is furnished to the mechanism of the Mill. The defendant at one time failed to place any name upon any part of the Mills which it produced of the type of plaintiff's, numbered 0 and 1; but it soon avoided that error, and has for the most part always placed its initials and address upon that type at the base, and has always placed its name and address upon the periphery of the fly wheels of the Mills of the other type.

The address in either type of Mill would be hidden from the view of a purchaser looking at the Mill from the front, and his first impression would necessarily be gained from the distinctive appearance of the Mill itself.

Upon these facts there really seems to be no room left for serious contention. The plaintiff's case comes perilously near to being one of trade-mark law, pure and simple. For many years it has without deviation so prepared its Coffee Mills, by the use of various devices constantly employed, that they had come to be generally known as the Enterprise Mills, and of the plaintiff's manufacture. If it had adopted one distinguishing and identifying mark or device for that purpose, and had succeeded with the one as it has with the many, a trade mark case would be here, and the equity jurisdiction would be undisputed. If any mistake has been made it grows out of the abundance of devices adopted; but multitudinous as they are, their constant use as an identifying collocation of devices is admitted.

Any possible weakness from the standpoint of a technical trade-mark case renders the situation exceptionally strong when we come to consider the facts from the standpoint of unfair trade and competition.

The boldness and evident sincerity exhibited by the defendant, which may be gathered from its answer and from the brief of counsel, is a refreshing combination. In the answer it says that it is doing what the plaintiff says it is doing, and that it has an inherent natural right to do so, and proposes to do the things which it is alleged that it threatens to do, and that such action also is right and proper and defensible. In the brief the position is further emphasized, as, for example:

"Plaintiff's grievance is that the defendant is showing to the trade that it is making a line of goods of which the plaintiff has enjoyed a monopoly, and which it desires without a patent to still monopolize."

"The plaintiff seeks to secure by a decree of this court a monopoly of the manufacture of a certain set of unpatented Coffee Mills. The defendant, on the other hand, claims the right to make and sell goods *exactly like* those which the plaintiff has been making and selling."

"The defendant judged that it was wiser to offer to the public a Coffee Mill of a form and appearance such as they were known to like. The Mills made by the plaintiff evidently met with the public favor both on account of their mechanical efficiency as grinding machines and also on account of their pleasing appearance as articles of furniture. The defendant accordingly determined to make its Mills like those of the plaintiff both in effectiveness of mechanical construction and attractiveness of appearance."

The fallacy of the defendant's contention is evident, and I am entitled to no particular credit for pointing it out, because numerous judges have called attention to a like fallacy heretofore. The plaintiff claims no monopoly in the manufacture and sale of Coffee Mills. The world at large and its products are open to the defendant. It can ransack the universe, and avoiding possible patents, put together and market what it will in the way of Coffee Mills; with this one exception, it shall not so arrange its materials and so dress its goods as to produce and market a Coffee Mill which will be liable to be mistaken for the Mills upon which, by long and persistent efforts, the plaintiff has been enabled to obtain a distinctive reputation.

The very cases cited—and I assume that no stronger ones exist, fail obviously to support the contention.

Fairbanks *vs.* Jacobus, 14 Blach., 337, very truly says, that apart from patents and designs, any one may make anything in any form, and may copy with exactness that which another has produced, "unless he attributes to that which he has made a false origin by claiming it to be the manufacture of another person;" and further, "what is not free is to pretend that a scale is made by one person which is in fact made by another."

Flagg *vs.* Holloway, 178 Mass., 83, is equally impotent. In that case the master laid down this principle: "That no one shall by imitation or any unfair device induce the public to believe that the goods he offers for sale are the goods of another, and thereby appropriate to himself the value of the reputation which the other has acquired for his own products or merchandise." The master further found that there was no evidence of actual deceit or of an actual attempt to deceive. He recommended a decree in a certain form; the trial court went beyond his recommendation, and the Supreme Court, speaking through the now Mr. Justice Holmes, sustained the master.

The master had sustained the infringement, although in respect of the zithers in controversy there were minor differences in dress, and although one bore the name Regent on a plate, and the other bore the name Germania, and although one was marked No. 5 and the other Num-

ber 7. He found that they would be mistaken one for the other, and also that it is not necessary that the imitation should be so close as to deceive people when they are placed side by side.

And to clench his contention counsel in that case at bar cites Globe Wernicke Co. *vs.* Fred. Macey Co., 119 Fed. Rep., 696. This is from the Circuit Court of Appeals of the Sixth Circuit, and is one of the latest deliverances upon the question of unfair competition. The decision is authoritative as a Federal decision, and peculiarly so by reason of the high character and learning of the members composing the tribunal, and I am at a loss to know why my attention has been directed thereto. If counsel will read page 704 again he must see that the authority is controlling against him. Let me quote for his benefit:

"It is not alleged that the defendant represents to the public that the book cases are of the complainant's manufacture, but only that it makes book cases and sections in the same sizes, styles, varieties of woods and finish as the complainant, and that by reason thereof the public are misled."

And again:

"Without doubt a party may adopt distinguishing marks to denote the origin of production as being his own, or he may adopt some other peculiar method of distinguishing his own goods and thus retain the benefit of the good reputation which he has acquired for them."

And again:

"In the present case the complainant does not rest upon the adoption of . . . special characteristics of any kind, but upon the use of the common features which pertain to the articles made and sold."

Let me suggest that the reason so few cases are found from which earnest ingenuity can even claim to find countenance for such action as that which is herein divulged, is because experienced business men do not as a rule attempt such a thing.

The courts are constantly endeavoring to uphold and enforce commercial morality and afford protection to honest enterprise and skill. Justice would be sadly misnamed if through her equitable arm she was unwilling or unable to protect the plaintiff in a case like the one at bar. It is unavailing for the defendant to hold aloft the white flag of peace, and under its supposed protection to invade and lay waste the plaintiff's well earned territory. On the question of actual intent to deceive the law is positively clear that the intent may be inferrable from the circumstances of the case. In other words, every one is held to be accountable for the natural and probable result of his acts.

I shall now make my last quotation from authoritative and controlling law.

N. K. Fairbank & Co. *vs.* N. W. Bell Co., 77 Fed. Rep., 877.

The Circuit Court of Appeals for my own Circuit, speaking through Judge Lacombe, says:

"Business men of ordinary acuteness who wish to establish a distinctive reputation for their goods with the general public, who seek to have such goods arrayed that they will always be unmistakably recognized by the public, certainly do not begin by assimilating the elements of their design to those of some competing manufacturer. When they are found doing this it must be assumed for some good reason or other they prefer to have the goods arrayed, not in a distinctive dress, but in one resembling their competitor's."

What will that court say if a case comes before it in which on the confessed facts the defendant not only assimilates the elements of the plaintiff's design, but with an air of bold defiance imitates the plaintiff's goods with painful minuteness, and asserts an inherent right to do so?

The whole case resolves itself down to this. Has the defendant, by placing its name in some instances, and in others initials, upon its Coffee Mills in the manner shown, sufficiently distinguished them so that likelihood of misconception by the ordinary purchaser, acting in the ordinary way, is eliminated? It fails to prevent one customer from sending the defendant's Mill to the plaintiff for repairs, and such a demonstration of fact is worth any amount of hypothesis.

If the defendant was excessively anxious to keep off the plaintiff's territory, why did it not make some change in color, configuration or design? The confusion could have been avoided with ease. He prepared the couch with eyes wide open and he ought to occupy it now with grace.

The absolute similarity of the Mills in an almost endless variety of ways is so marked, the finger directing the purchaser to the plaintiff is so imperative, that it cannot be possible that the letters on the periphery of the wheels could blot from the ordinary mind the forceful evidence of plaintiff's production, which the extremely attractive collocation of colors, shape and design presents. When the first glance of the eye fixes the idea of origin firmly upon the mind a minor detail must in the ordinary case pass unnoticed. By dint of comparison and constant repetition in the quiet of the court room such a detail may grow distinct and exceedingly luminous, but in the crowded store, in the rush and hurly burly of everyday business life it would fade into nothingness when opposed to the general attractiveness of the entire structure. That the defendant puts into the hands of the retailer or jobber the means of deceiving, whether with or without intention, is too obvious to deserve further discussion.

It is well also to keep in mind the way defendant treated the matter of numbers. The explanation is unsatisfactory and does not convince me that their use was such as to leave no doubt about the defendant's motive. If the defendant had made its Coffee Mills so constructed and dressed that their appearance had marked them as distinctively its product and prevented any confusion with the plaintiff's goods, it might perhaps use the numbers which it did use with propriety, and with equal propriety could have used the exact numbers applied by the plaintiff to its goods; but as the case stands, the use of the numbers with such slight change only intensifies the injury, since it furnishes an additional means of creating confusion, misapprehension and deception. Their use also furnishes a strong reason for doubting the absolute good faith of the defendant, the immaculate purity of its motive. And on this branch of the inquiry let me offer this last word. If the defendant had the courage of its conviction why should it have stopped the exhaustive simulation of the plaintiff's goods when it reached the point of placing thereon certain usually harmless numbers, which are understood by the trade to be used for the sole purpose of indicating size?

The only question open is as to the extent of the relief to be granted.

The injunction should be broad enough so that, while not interfering with the inherent right of the defendant to make Coffee Mills of such design, shape and dress as it may please to employ, it will prevent said defendant from marketing a Mill, not only such as it now markets and threatens to market, but any Mill, which by reason of its shape, design and arrangement of color and number, shall so resemble the Coffee Mills of the plaintiff as to be likely to create a misapprehension in the minds of the purchasing public of average intelligence, and to tend to lead the ordinary consumer to mistake the Mills of the defendant for the Mills of the plaintiff.

Let an injunction issue in accordance with this opinion, and let the matter go to a master for an accounting.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS *for catalogues, price-lists, quotations, &c., have been received from the following houses:*

FROM KILGORE & HAYDON, who have just opened in the Hardware, House Furnishing and Harness business at Athens, Texas. Messrs. Kilgore and Haydon have had 13 years' experience in the Hardware line, six and one-half years of which have been spent with W. B. Belknap & Co. of Louisville, during most of which time they have represented that concern in Texas. They resigned their positions July 1 to start out on their own account.

FROM A. MADSEN & SONS, who have lately engaged in the wholesale and retail business in Shelf and Heavy Hardware, Stoves and Tinware, Farm Implements, Sporting Goods, Paints and Oils, &c., in Lincoln, Neb.

FROM HARDWICK-ETTER HARDWARE COMPANY, Sherman, Texas, who are intending to add to their business a full line of mill supplies, including Pipe Fittings, Iron Pipe, Belting, Packing, &c., which they will handle in a jobbing as well as retail way.

THE LAYMAN-CAREY COMPANY, Indianapolis, wholesale Hardware dealers, have put on the market $80,000 of 6 per cent. preferred stock, cumulative, non-taxable and non-assessable, of the par value of $100 and offered to the public at 102. The stock is redeemable and due, at par, July 1, 1918, with option to redeem at any dividend paying period after July 1, 1908, at 105 and interest. The proceeds of the sale of the new stock will be used as part of cash payment made to the Simeon B. Carey estate in retiring its interests in the house. The company have conducted the wholesale Hardware business in Indianapolis since 1870.

NATIONAL CYCLE TRADE ASSOCIATION.

THE second annual meeting of the National Cycle Trade Association was held at Niagara Falls on July 7, 8 and 9. The meeting was very largely attended and much enthusiasm prevailed. The following were elected officers:

PRESIDENT, Chas. W. Leng, J. S. Leng's Son & Co., New York City.

FIRST VICE-PRESIDENT, Geo. T. Roble, Excelsior Supply Company, Chicago. Ill.

SECOND VICE-PRESIDENT, Brace Hayden, Dunham, Carrigan, Hayden Company, San Francisco, Cal.

THIRD VICE-PRESIDENT, Chas. H. Turner, Albany Hardware & Iron Company, Albany, N. Y.

FOURTH VICE-PRESIDENT, Chas. J. Schmelzer, J. F. Schmelzer Sons Arms Company, Kansas City, Mo.

SECRETARY, A. M. Scheffey, New York City.

TREASURER, Harris Parker, C. B. Barker & Co., Limited, New York City.

DIRECTORS: Eugene Arnstein, Chicago, Ill.; W. L. Beckley, the Beckley-Ralston Company, Chicago, Ill.; A. J. Holmes, Farwell, Ozmun, Kirk & Co., St. Paul, Minn.; Chas. L. Kelsey, the Kelsey Company, Buffalo, N. Y.; Chas. W. Leng, J. S. Leng's Son & Co., New York City; E. J. Lloyd, Bindley Hardware Company, Pittsburgh, Pa.; Geo. W. Nock, Philadelphia, Pa.; Harris Parker, C. B. Barker & Co., Limited, New York City; Geo. T. Roble, Excelsior Supply Company, Chicago, Ill.; W. H. Harrah, Harrah & Stewart Mfg. Company, Des Moines, Iowa; Wm. Spalding, Spalding Company, Syracuse, N. Y.; E. J. Willis, Willis Park Row Bicycle Company, New York City.

The following gentlemen compose the Grievance Committee for the current year:

Joseph Gales, Schoverling, Daly & Gales, New York City; Chas. L. Kelsey, the Kelsey Company, Buffalo; Gordon Beckley, the Beckley-Ralston Company, Chicago, Ill.; E. J. Lloyd, Bindley Hardware Company, Pittsburgh, Pa.; A. J. Holmes, Farwell, Ozmun, Kirk & Co., St. Paul, Minn.; Brace Hayden, Dunham, Carrigan, Hayden Company, San Francisco, Cal.; E. T. Weiant, Consolidated Supply Company, Denver, Col.; J. T. Richards, Richards & Conover Hardware Company, Kansas City, Mo.; C. L. Elyea, Alexander-Elyea Company, Atlanta, Ga.

The president delivered an address covering in brief the operations of the association during the last year, giving details of various features of association work and outlining the plans for the future. The address was very favorably received. Other addresses were delivered by H. H. Fulton of the Eclipse Machine Company, Elmira, N. Y.; J. R. B. Ransom, treasurer of the Snell Cycle Fittings Company, Toledo; W. A. Graham of J. H. Graham & Co., New York City, and others. A very interesting letter was read from Brace Hayden of Dunham Carrigan & Hayden Company, San Francisco, Cal.

The joint session between manufacturers of Bicycles and Bicycle Sundries and jobbers afforded an excellent opportunity for interchange of opinions on the interests of the trade. The "Detroit Plan" of marketing goods was considered, and a committee was appointed to arrange for placing this plan in operation.

Very pretty badges were supplied to all the members and visitors by the Forsyth Mfg. Company of Buffalo, N. Y. A neat little pocket rule as a memento was supplied by the Harrah & Stewart Mfg. Company, Des Moines, Iowa.

On the afternoon of July 9 an excursion was tendered the members by the manufacturers and jobbers of Buffalo. The trip was taken on the steamer "Idle Wild" and was very much enjoyed.

The next meeting will be held the second week in July, 1904, at a place not yet selected.

The following firms were represented at the meeting:

E. T. Brown, Buffalo Specialty Mfg. Company, Buffalo.
Chas. F. W. Kelly, Continental Rubber Works, Erie, Pa.
H. H. Fulton, Eclipse Machine Company, Elmira, N. Y.
E. H. Haney, Judd & Leland Mfg. Company, Clifton Springs, N. Y.
Ralph D. Webster, Eclipse Machine Company, Elmira, N. Y.
C. H. Pringle, Canada Cycle & Motor Company, Toronto, Ont.
W. L. Lambert, Canada Cycle & Motor Company, Toronto, Ont.
Robert H. Spencer, Cox & Spencer, Rahway, N. J.
James Fintze, the Hoover-Ball Company, Newark, Ohio.
S. R. Palmer, Continental Rubber Works, Erie, Pa.
Wm. V. Sauter, Edw. K. Tryon, Jr., & Co., Philadelphia.
C. K. Anderson, Chicago.
Wm. E. Metzel, Edmonds Metzel Mfg. Company, Chicago.
W. H. Coles, the McIntosh Hardware Corporation, Cleveland.
Jno. C. Campbell, the Davis Sewing Machine Company, Dayton, Ohio.
E. J. Lonn, Great Western Mfg. Company, La Porte, Ind.
F. C. Gilbert, Pope Mfg. Company, Hartford, Conn.
H. Mesinger, H. & F. Mesinger Mfg. Company, New York City.
Geo. T. Roble, Excelsior Supply Company, Chicago.
Geo. Collister, Collister & Sayle, Cleveland.
V. W. Bonham, Judd & Leland Mfg. Company, Clifton Springs, N. Y.
C. L. Elyea, Alexander-Elyea Company, Atlanta, Ga.
Chas. A. Persons, Persons Mfg. Company, Worcester, Mass.
Thos. J. Wetzel, National Cement & Rubber Mfg. Company, Toledo, Ohio, and Baldwin Chain Mfg. Company, Worcester, Mass.
C. L. Kelsey, the Kelsey Company, Buffalo.
Fred. I. Willis, H. T. Hearsey Vehicle Company, Indianapolis, Ind.
W. H. Stark, Stark & Weckesser, Dayton, Ohio.
D. C. Spraker, Kokomo Rubber Company, Kokomo, Ind.
S. G. Rigdon, Goodyear Tire & Rubber Company, Akron, Ohio.
H. L. Hall, E. H. Hall Company, Rochester, N. Y.
H. S. Graesse, the B. F. Goodrich Company, Akron, Ohio.
F. J. Wilbur, Schoverling, Daly & Gales, New York City.
John N. Willys, Elmira Arms Company, Elmira, N. Y.
Adolph Morris, the Manhattan Storage Company, New York.
W. H. Pirrong, the Standard Welding Company, Cleveland.
E. P. Hubbell, the National Cement & Rubber Mfg. Company, Toledo, Ohio.
Herman Ely, Federal Mfg. Company, Elyria, Ohio.
Wm. A. Graham, John H. Graham & Co., New York City.
A. E. Brion, Peter A. Frasse & Co., New York City.
W. S. Gorton, the Standard Welding Company, Cleveland.
J. R. B. Ransom, the Snell Cycle Fittings Company, Toledo, Ohio.
G. V. Keller, Relay Mfg. Company, Charlotte, N. C.
W. F. Emerson, Buffalo Metal Goods Company, Buffalo.
J. J. Post, Post & Lester Company, Hartford, Conn.
G. C. Strauss, Jos. Strauss & Son, Buffalo.
R. R. Harris, Shelby Steel Tube Company, New York City.
H. S. White, Shelby Steel Tube Company, Pittsburgh.
A. H. Coates, Bryte & Coates, San Francisco.
W. L. Beckley, the Beckley-Ralston Company, Chicago.
C. E. Munroe. Frank Mossberg Company, Attleboro, Mass.
F. C. Van Derhoof, Standard Spoke & Nipple Company, Torrington, Conn.
Harris Parker, C. B. Barker & Co., Limited, New York City.
John A. Alvord, Standard Spoke & Nipple Company, Torrington, Conn.
Wm. J. Surre, the Corbin Screw Corporation, New Britain, Conn.
Frank F. Weston, Barwest Coaster Brake Company, New York.
W. L. Colt, Federal Mfg. Company, Cleveland.
J. T. Wherett, Russ Rim Company, New York City.
J. H. Whittington, Forsyth Mfg. Company, Buffalo.
M. J. Cawoll, Utica Cycle Company, Utica, N. Y.
James How, Hartford Rubber Company, Hartford, Conn.
W. O. Rutherford, the B. F. Goodrich Company, Buffalo.
W. S. Roby, the S. B. Roby Company, Rochester, N. Y.
D. L. Spraker, Kokomo Rubber Company, Kokomo, Ind.
E. J. Willis, Willis Park Row Bicycle Company, New York City.
H. V. Dodge, John R. Keim, New York City.
Geo. W. Schoveley, Pennsylvania Rubber Company, Jeannette, Pa.
Daniel B. Maely, Pennsylvania Rubber Company, Jeannette, Pa.
Chas. E. Weaver, the Kelly Handle Bar Company, Cleveland.
C. H. Walters, Goshen Rubber Works, Goshen, Ind.
Geo. W. Nock, Philadelphia.
W. T. Harrah, Harrah & Stewart Mfg. Company, Des Moines, Iowa.
Will H. Olmsted, H. R. Olmsted & Son, Syracuse, N. Y.
Wm. Spalding, the Spalding Company, Syracuse, N. Y.
J. W. Wall, Bridgeport Gun Implement Company, New York.
Harry C. Lee, Bridgeport Gun Implement Company, New York.
Frank Mossberg, Frank Mossberg Company, Attleboro, Mass.
Chas. W. Leng, J. S. Leng's Son & Co., New York City.
Mr. Kellner, Kellner & Ihde, Buffalo.
A. M. Scheffey, New York City.
Mr. Rick, F. F. Rick & Co., Buffalo.
Chas. H. Turner, Albany Hardware & Iron Company, Albany, N. Y.

The following firms were represented by proxy:

Eugene Arnstein, Chicago, Ill.
Consolidated Supply Company, Denver, Col.
Farwell, Ozmun, Kirk & Co., St. Paul, Minn.

THE ANGLO-AMERICAN EXPORT AGENCY, 95-97 Liberty street, New York, have been made the general Eastern and English agents for a new pipe joint compound called "No-Leak." This preparation is made by the Edgecombe Company, Indianapolis, Ind., and is fully described in a 12-page booklet, envelope size, just issued. The Anglo-American Export Agency also have a branch in Manchester, England.

FIRE visited the plant of the Wood Shovel & Tool Company, Piqua, Ohio, July 11, destroying the forge, pickling, polishing and finishing rooms and causing a loss of about $50,000. The steam plant, coal storage, shipping room and office were saved. New fire proof buildings, enlarged to accommodate double their present capacity, will be immediately erected, and it is said within 90 days factory operations may be resumed. At the time of the fire the company were three months behind in their orders.

Colorado Retail Hardware Dealers' Association.

MIDSUMMER MEETING.

THE COLORADO RETAIL HARDWARE DEALERS' ASSOCIATION met for their midsummer meeting at the Hotel Alamo, Colorado Springs, on July 7, 8 and 9, and the membership of the association was well represented. The business deliberations were carried forward in a manner most creditable to the able officers of this body, and the amount of enthusiasm and interest manifested by the membership was refreshing. The time of the season was most propitious for a good time, and the programme of the Entertainment Committee reflected great credit on them. The attendance of W. P. Bogardus, president of the National Retail Hardware Dealers' Association, was a great inspiration to the body, and his presence was most heartily welcomed and appreciated. The attendance of many ladies added much to the pleasure of the meeting.

OPENING SESSION.

The meeting was called to order on July 7 at 2.15 p.m. by A. L. Branson, president of the association. Before announcement of the first order of business J. P. Barnes of Colorado Springs, on behalf of the Entertainment Committee, stated that a trolley ride would be taken at the close of the session to various points of interest, in company wit hthe members of the Lumbermen's Association and their ladies. President Branson appointed A. Unfug of Walsenburg to serve as sergeant-at-arms.

President Branson then addressed the meeting as follows:

Address of President Branson.

To this, the first midsummer meeting of the Colorado Retail Hardware Dealers' Association, I welcome you most heartily, and trust your journey to this fair city and presence at our sessions may be attended with both pleasure and profit.

I am encouraged to meet here such a goodly number who have identified themselves with our infant association, and others who, although eligible, have not yet come within our ranks, but by their presence testify to their interest in the work we are organized to carry on. Out of perhaps 175 Hardware dealers in our State eligible to membership, one-half this number have not yet affiliated with us.

While the methods for securing members adopted by our organizing convention have proven fairly successful many have not yet been reached, and I hope to have this convention discuss this important matter at length with a view to securing better results. It it were possible to enroll even two-thirds of the eligible dealers of our State, I believe a successful insurance department could be established which alone would save to each member carrying $2000 or more insurance several times the expense of maintaining membership in our association.

I am pleased to note that several State Hardware associations have organized such departments, and the results are proving highly satisfactory, the saving in premiums amounting to about half the old line rates. As this feature is also prominent in some of the State lumber associations, I would be pleased to have an expression from some of our friends of the Colorado Lumber Association, who are present, as to the success which insurance has met in their order.

CONDITION OF BUSINESS.

Since our meeting in Pueblo in February, until the copious rains of last month, the Colorado Hardware dealers, generally speaking, did not find business quite up to the high pressure of 1902, perhaps, notwithstanding general conditions throughout the country continued most prosperous. This temporary lull was no doubt largely due to the very late season, and in some parts of the State to lack of sufficient moisture to inspire confidence in crop or range prospects.

Apropos of dull periods, has it not occurred to you that perhaps no legitimate business is more susceptible to the buoyant or depressed spirits of the buying public than the Hardware trade? Groceries, meat and clothing we must have, but owing to the substantial nature of our wares articles considered worn out in times of prosperity will meet the exigencies of our needs indefinitely in time of depression. However, the present propitious season has imbued our business with new life, and I feel that we are met at a time when with good crop prospects and steady Hardware values we may congratulate each other on the favorable outlook.

RIGHT PRINCIPLES.

Since our organization I have received several letters from jobbers and manufacturers' agents, assuring me that it was their desire to conduct their business along lines in entire harmony with the principles of our association. Such expressions are encouraging in so much as they indicate to us that the jobbers recognize that our principles are right, and also that as members of that grand army of 4000 or 5000 of the ablest retail Hardware merchants in some 20 of the United States, banded together under the name of the National Retail Hardware Dealers' Association, they cannot afford to antagonize any branch of such National Association by any violation of proper trade ethics. Let us be careful to temper all our demands with absolute fairness, with proper consideration for the rights of others and this grand organization of our craft is bound to result in establishing the Hardware business on a higher plane.

THE PHILADELPHIA CONFERENCE.

During the spring of the present year the National Hardware Association, an association made up of the principal Hardware jobbers of the country, invited the National Retail Hardware Dealers' Association, through its officers, to send a committee to Philadelphia, there to meet a like committee from their association to discuss certain existing evils and means of relief from same. The Jobbers' Association was represented by some of its ablest members, and the Retail Association by such men as President Bogardus, Secretary Corey. Treasurer Stebbins, and others, of whom we are all proud, and it is a pleasure to note that although their discussions were executive, so to speak, the two associations are working in perfect harmony in an endeavor to protect the retail Hardware dealers as the legitimate distributers of Hardware. Mr. Bogardus will doubtless refer to this conference and tell us something of its importance to-morrow, at which time we anticipate the pleasure of his presence.

LUMBER AND HARDWARE.

It is our pleasure to meet here in convention at the same time as our friends, and in many instances our competitors, the retail lumber dealers. They, like ourselves, are striving through their association to improve the conditions surrounding their business, and, like the Hardware dealers, want to be fair, but I want to ask you, who are members of our association, and you (if any are present) who are members of the Lumber Association, if it is fair for the lumber dealers doing business in towns having exclusive Hardware stores to carry Nails, Locks, Butts, Screws, and even Barb Wire? Mr. Lumber Dealer, is this consistent? Does your association stand for this manner of doing business?

I recognize that the Lumber Association cannot control the action of its members along this line, but I would recommend that we bring this injustice before them by a formal protest presented to their secretary before our convention adjourns.

LABOR TROUBLES

continue to be referred to in the daily press and trade papers as the one dark cloud on the commercial horizon, and the successful solution of this great problem is perhaps

yet in the remote future. Retail Hardware dealers, not being large employers of labor, may think this question does not vitally concern us, but I want to say that it does concern us directly, and if this strife continues every one of us employing tinners, plumbers, or even clerks, is going to realize that a small business is just as susceptible to interference and injury from this source as are large manufacturing plants. I do not wish to be understood as being opposed to organized labor, but I believe the satisfactory settlement of this controversy over hours, wages and the recognition of organized labor will eventually be brought about through the medium of organized employers.

When organized labor has recognized the absolute necessity of abiding by the counsel of its true representatives, and has forever renounced the professional agitator, and when such representatives meet in friendly conference and fair discussion the equally true representatives of organized employers, then may we expect to see labor and capital at peace and all classes benefited, but until such principles are recognized and put into practice the strife will continue. But I have said enough on this subject, and referring again more directly to association work and its benefits, I want to say:

I believe if we would file our complaints more freely with our secretary, where the manufacturer or jobber has violated good trade ethics, we would realize more fully the benefits of our organization. Turn the unfair

A. L. BRANSON, President.

jobber over to Mr. Moys. If your grievance is a just one he will line Mr. Jobber up in the name of the association, but as I suspect our secretary will refer to this subject in his report, I will not dwell longer on same.

CONSISTENCY

is a hard thing to live up to. Were we as enthusiastic in living up to the principles of our association in every day business as we are in advocating them at our convention the beneficial influence of our organization would be largely increased. At the convention we all condemn the jobber who sells our customer goods in retail quantities at wholesale prices, and to-morrow give this same jobber a liberal order for goods for our shelves; or we denounce the manufacturer who allows his goods to be slaughtered by the mail order house, and at the same time we give these same goods prominence on our shelves, and perhaps in selling them give them preference over equally as good goods made by a manufacturer who protects us; or again, we meet our town competitor with a warm smile and hearty hand shake, and tell the convention that we love our competitor, and rather than cut prices would be perfectly willing to see him get just about all the business in our town. But by the time we get in sight of our town we have made up our mind to go and see the contractor to whom we had quoted Nails the day we left home and tell him confidentially that we will make the price 10 cents per keg less, for fear our competitor will get the order. Let us be loyal to the jobber and manufacturer who are loyal to us, and we will soon find our influence will be felt by all jobbers and manufacturers, and through such loyalty may we hope to see many more such concerns falling in line with our views and the sale of Hardware through Hardware stores largely increased. But how about

LOYALTY TO OUR COMPETITORS?

I want to tell you that next to retaining the friendship of our customers we want to retain the friendship of our competitor. It pays us and it pays him, and notwithstanding that the apparent good feeling exhibited at conventions by competitors toward each other may not always be maintained in our efforts to do business in every day life, yet I firmly believe nothing tends to eradicate unfriendliness between competitors so completely as organizations of this kind. Sometimes such meetings present the first convenient opportunity to get acquainted with our competitor, and as an old schoolmate of mine used often to remark, "We are all alike when we get acquainted." We usually find a pretty good fellow on acquaintance in a man we had previously thought ought to be wearing longitudinal stripes. Aside from the practical value of the dealers' association, the acquaintances we form, the meeting of men engaged in the same line of business and the new ideas we absorb are all beneficial, and to me are alone worth all the cost of membership were there no other benefits to be derived.

In conclusion, I want to refer to the great interest President Bogardus manifests in association work by traveling nearly 2000 miles to be with at this time, and I am sure this convention will take due cognizance of this, as well as the courtesy of the Hardware journals in publishing the proceedings of the Pueblo convention, and proffering us the free use of their columns at any and all times for the publication of any association matter, by the adoption of appropriate resolutions.

I want to thank Mr. Donovan, president, and Mr. Hemenway, secretary, of the Colorado, New Mexico and Wyoming Lumber Dealers' Association, for their very hearty invitation for our association and ladies to join them and their ladies in the pleasure part of their programme, which our Executive Committee promptly accepted. To many members of our association I am indebted for encouraging letters, and to those consenting to take part in our programme I am especially grateful, as well as to the members of our Executive Committee, who have so promptly replied to all matters requiring their attention.

I desire, especially, to thank Mr. Barnes for so ably representing the Executive Committee in arranging all the details of this meeting, and to our untiring secretary, Mr. Moys, for his ever ready assistance. To Mr. Moys is principally due whatever success our association has attained, and with a continuance of the same generous support from all members in the future as in our short past the Colorado Hardware Dealers' Association will, we hope, soon be in the front rank of State associations.

Secretary-Treasurer's Report.

The report of the secretary-treasurer, F. C. Moys of Boulder, was as follows:

At the close of our organization meeting in February I was instructed by your Executive Committee to exert every effort to increase our membership.

Since that time I have sent out numerous circular letters; have had printed the constitution and by-laws and minutes of our last meeting and mailed them to most of the Hardware dealers of the State, especially those who were not members; have written a vast number of personal letters and personally interviewed quite a number of Hardware dealers who were not members, with the result that our membership has increased as follows:

Number taking membership at meeting February 16: Active, 35; honorary, 13.

Applications approved by Executive Committee: Active, 36; honorary, 10.

Making a total membership at this time of, active, 71; honorary, 23.

In obtaining new members I have been very ably assisted by a number of our members, and desire at this time to thank them for their hearty co-operation.

At its meeting of February 17 your Executive Committee appointed J. P. Barnes delegate and myself alternate to the convention of the National Retail Hardware Dealers' Association at Chicago, March 17, 1903. Mr. Barnes being unable to attend, I went as representative of this association and am pleased to report a very interesting and instructive meeting. Inasmuch as Colorado was the youngest association represented, and being of an extremely modest and retiring disposition, as you all know, I put in most of my time as an attentive listener. I presume you have all read the proceedings of this convention in the trade magazines, or in the Bulletin, which Mr. Corey sent to you, so I will not dwell on details.

The officers' reports, together with statements of delegates, showed the growth of our organization to be most satisfactory. There are now healthy associations in 18 States and Territories affiliated with the National Association.

Considerable time was devoted to the discussion of the Parcels Post bill, which was before the last Congress. This is a very dangerous measure, which is fostered by the catalogue houses, and will come up during the next session of Congress. Our line of business is probably affected more than any other by catalogue houses, and we should use all honorable means to prevent the passage of this bill.

Reports from delegates from several States showed their associations were operating very successfully.

MUTUAL INSURANCE.

Among Hardware dealers' mutual insurance companies Minnesota is the pioneer and has an enviable record. They have paid all losses promptly; have rebated 25 per cent. of the insurance premiums paid in and have accumulated nearly $50,000 as a reserve fund. They expect shortly to begin rebating 50 per cent. of premiums. It was decided to organize a national retail Hardware dealers' mutual insurance company, and a committee was appointed to formulate plan for same and submit it to the Executive Committee, and upon their approval the insurance company will proceed to business. When this insurance company is launched I shall take a portion of my insurance in it and recommend that you all do the same.

Minutes of our last meeting provided for payment of 75 cents per capita tax in National Association. The by-laws for the National Association provide that each State association shall be assessed 75 cents for membership and 25 cents additional for Hardware Bulletin. I have remitted to the national secretary on the basis of 75 cents per capita, and he and our national president advise me we may get through on that basis this year, but hereafter we must pay the full amount of $1 per member.

The probability is that the next national convention will be called prior to our next annual meeting, and you should provide for a delegate at this time. A number of the delegates to the national convention were the secretaries of the State organizations; in fact, most of the States sent their presidents and secretaries as delegates.

We had a meeting of the State secretaries with the national secretary to discuss plans of procedure in different States and exchange views in regard to future work. I feel that this was a very instructive meeting, and I have endeavored to profit by it. At this time the matter of a semiannual meeting of State secretaries was discussed, and I call your attention to communication from Mr. Corey in regard to it. Taken as a whole, I feel that my trip to the national convention was not in vain and that you will feel the money was well expended.

COMPLAINTS.

Since I opened the complaint department I have been surprised at the few who had grievances to report. I was under the impression conditions in Colorado were in need of great improvement, but it seems most of our members are contented with them as they are. A few complaints have been filed, a portion of which have been satisfactorily adjusted, while others are under consideration.

I am negotiating with the Colorado Fuel & Iron Company in regard to protection for the retailer. At present they protect the jobber but not us. We are glad to have the jobber protected, but want the retailer to have some of the same.

The blacksmith supply houses and the mine supply houses have all expressed themselves as glad to cooperate with us in protecting the retailer, and have sent delegates to this meeting to confer with a committee with a view to arriving at some agreement. These delegates should be extended every courtesy and consideration.

SHOULD NOT CARRY HARDWARE.

In connection with my work, as well as by personal observation, I have noticed several classes of people carrying Hardware as side lines, who, in my opinion, should not, and to whom the Hardware jobbers and manufacturers should not sell. I refer particularly to department and racket stores, drug stores, second-hand stores, grocers, furniture stores and lumber yards. There are many small towns where the only Hardware carried is in general stores or lumber yards, and in such places it is undoubtedly justifiable, but in towns having exclusive Hardware stores it seems unnecessary and demoralizing to the legitimate Hardware business.

F. C. MOYS, Secretary-Treasurer.

Referring especially to the lumber yards, I will cite a condition that exists in our town, and I am told it is the same in several other places. The lumber dealers are said to have an agreed price on lumber and all building material except Builders' Hardware. They will say to a man about to build: "I can't deviate from the price on lumber, as that is fixed, but if you will buy your lumber from me I will make you a present of the Builders' Hardware." In a case a few days ago the lumber dealer put in the Hardware at cost and gave the man an order for a $20 suit of clothes in consideration of his buying the lumber bill. And yet these lumbermen think they are not deviating from their schedule of prices on lumber. They should cut out the Hardware, as they do not make anything on it themselves nor let the Hardwareman do so. I would suggest that this convention present a petition to the lumber dealers, in convention assembled at this time, calling upon them to discontinue the Hardware end of their business, or at least sell their Hardware at a reasonable profit.

I would suggest that the by-laws be amended to read that the fiscal year of this association be from January 1 to January 1, and that all applications filed with the secretary after November 1 of each year be exempt from dues for the balance of that year, and that the membership fee in such cases cover dues for the ensuing fiscal year.

I would call your attention to the resolution passed at our last meeting calling upon Governor Peabody to support Senate Bill No. 52 and House Bill No. 34, amending the exemption laws. A copy of this resolution was sent to Governor Peabody, and in due time he affixed his signature to the bill and the same became law.

FINANCIAL REPORT.

Membership fees		$435.00
Disbursements:		
Warrant No. 1	$149.10	
Warrant No. 2	78.10	
		227.20
Balance on hand		$207.80

Of the original 48 members who were enrolled February 16 all have paid their dues except two active and three honorary. Of those who joined by application, two active failed to inclose their membership fee and same has not been paid. We have therefore $35 due from delinquents.

On motion of J. T. Wallace of Stooper, duly seconded, the report of the secretary-treasurer was adopted.

The following Committee on Resolutions was appointed by the president:

Geo. Wilson, Florence; A. W. Morrell, Cripple Creek, and J. H. Linder, Golden.

Discussion.

Animated discussion of the secretary's report followed, which was participated in by many members, the especial point being the supplying by jobbers of Hardware to blacksmiths, mining men and other consumers, this cutting out the legitimate retail trade and profits, and plans of redress and amicable agreement on this matter were suggested. Considerable correspondence had by the secretary with various jobbers throughout the country bearing upon this point was also read.

The question of insurance of the retail Hardware dealers was also discussed very favorably, and mention made of the success which had attended the insurance company formed by the retail Hardware dealers of Minnesota, and also of the fact that the matter of insurance was now under consideration by a committee of the National Retail Hardware Dealers' Association.

WEDNESDAY MORNING SESSION.

The convention reassembled at 9.40 o'clock on Wednesday morning.

At the request of the president, Mr. Unfug, sergeant-at-arms, escorted W. P. Bogardus, president of the National Retail Hardware Dealers' Association, to the platform. Mr. Bogardus was then introduced to the meeting, and spoke as follows:

Mr. Bogardus' Address.

The only compensation a man can get in coming 2400 miles is the hearty reception you gentlemen give me this morning; but I realize it is not I to whom you are giving this reception, but the association with which you are affiliated, and to which we all feel the importance of being loyal and aiding in every possible way its efforts to advance the cause of the retail Hardwaremen of the United States.

A man, an American, is of no earthly use unless he can talk, and is never happy unless he is talking, so what I have to say this morning I have written out.

It is a source of great pleasure that I am permitted to be with you to-day. As president of the National Retail Hardware Dealers' Association I bring you its greetings, with the hope that your organization may grow and prosper until the anticipations of its organizer may be realized, and it shall become a power for good throughout your entire State.

Ten years ago 13 Hardwaremen from different parts of the State of Ohio gathered together at Columbus, Ohio, to compare experiences and to see if some method could not be devised so that some of the evils threatening the prosperity of the retail trade, if not abolished, could be largely mitigated. The result of the conference was the organization of the first retail Hardware dealers' association in the United States. From this small beginning have developed associations in 19 different States, and these are affiliated together in the National Retail Hardware Dealers' Association. And when the membership has become what it should be over 12,000 Hardware dealers will be back of the National Association. What a power they will have, and what an influence they can exert! But some may say, to what end is all this? Why this labor and expense?

During the closing years of the nineteenth and the opening years of the twentieth century

NEW METHODS OF DOING BUSINESS

have arisen, methods at variance with all preconceived notions of what was right and proper. To meet these new ways and to control them so that the injury arising from them might be counteracted, to a very large extent, is one of the objects of our labor in organizing the Hardware trade throughout the country. And if I might be permitted to say so, it would be a good thing if every other line of business were organized. In these strenuous times there is nothing done but by combination. Organized efforts are the ones that meet with any degree of success. The individual is swallowed up by the company. The company is absorbed by the organization. The organization is taken in by the trust, and the trust is merged into the monopoly. To meet these conditions come, of necessity, counter combinations. There is something appalling in the thought that there is such a power with such vast amounts of capital in the hands of so few men. And yet even this has its compensations. The possession of great power is very apt to bring with it a corresponding degree of responsibility, and to inspire an amount of prudence and caution in the use of the power that makes it a conservator of the peace and of prices rather than otherwise.

And so we come to look with a degree of complacence upon the great combinations that a few years ago we should have regarded as impossible. But there are other disturbing elements in trade that demand our most careful attention and consideration. It is reported of an old Quaker, whose son was about to leave him, that his parting admonition was: "My son, get money; honestly, if you can, but get money." We have to-day as competitors men who are adopting that rule as a guide in their business methods. It is trade that they want, and the end justifies in their eyes, or seems to, any methods that will bring the desired results. They are strong advocates of the idea that quantity makes the price—an idea that is wrong in principle and practice. Taken with other things quantity should have a strong influence in making prices, but as a bare proposition, quantity by itself should not make the price. To illustrate: A manufacturer is approached by a party who wishes to buy goods. The manufacturer's output will amount to, say, $1,000,000 a year. The party says: "I will take $100,000 worth of your goods, and will pay you spot cash for them, provided I can get the price. I expect to sell them for cash and I have the cash to pay for them, but I must have a very low price. My trade, whatever I may get, must come from all over the country. I cannot hope to have the trade that I want unless I can undersell the retail merchants all over the country. I must demoralize their prices. I must create a doubt in the minds of those who have been patronizing the retail trade. I must try to make them think they have been robbed by their home merchants. I want to put on my catalogue 'I am the price maker of the country.' If men want goods cheap they must send their money to me and I will give them what they want. I want prices so that I can cut the selling price down so that there is no living profit for the retailer. My success depends upon my ability to cripple the retail trade of every part of the country. I will send my catalogues to every town and hamlet and farm house in all this broad land. I will advertise your goods all over and create a demand that has never before been heard of. I will introduce your goods into communities that have never heard of them."

THE TEMPTATION

to make such a large sale to one person and get the cash is too great for the manufacturer, and the goods go out at a price that I am satisfied would give the balance of that manufacturer's trade something to think about. Now the manufacturer has disposed of one-tenth of his out-

put. He makes goods that there is an almost universal demand for. They have been advertised by the retail trade in every part of the land. Wherever there is a little store you will find his goods upon the shelves. The goods need no advertising, for they are universally known. And that is the reason the party is so anxious to have them. The retail price of them is almost universal. Every one knows the price. It has been the same for years. Here is the opportunity that the party has been looking for. He will buy these goods and he will put them upon the market at a price as low, if not lower than the retail trade of the country can buy them. When these prices go out there is consternation in the minds of the retail traders. They are not able to meet the prices and live.

The manufacturer has still nine-tenths of his goods unsold. He has not less than 180 customers to whom he expects to dispose of the balance of his goods. There are none of them that buy $100,000 worth, and as price is regulated by the quantity, they cannot expect to get their supplies as cheap as the first customer. Now these 180 customers must sell the goods they have bought, and they are relying on the retail trade to help them to dispose of them. But the party who bought the $100,000 worth is satisfied with the amount of profit that the 180 customers are asking the retail trade, and he goes to the consumer and offers goods at jobbers' prices. Where is the jobber going to get his trade? The retailer cannot buy of him.

The fallacy that price is regulated by quantity has put a club into the hands of the party who bought one-tenth of the manufacturer's output to beat out the business life of the other nine-tenths of the manufacturer's customers, and finally to break down the manufacturer's business. A curious illustration of this came to my knowledge the other day. Letters had been written to a number of business men in several States as to the prices on certain goods. A remarkable unanimity was noticed in the replies: "We do not handle the goods. We are selling other makes. Twenty years ago we did not know of the other makes. To-day they are being scattered broadcast."

There is in these present times an evolution in business methods.

THE HAPPY-GO-LUCKY METHODS OF THE PAST

are dead, and the sooner we realize the fact and take up with the new ways the more money we will have. New systems of various kinds are in vogue, and we must adopt them if we wish to keep along with the rest. How shall we find out what these new ways are? By organizing and attending State associations; by keeping in touch with our neighbors; by putting way the idea that our competitors are our bitter enemies and have no right to live and do business in the same town with us. By realizing that the other fellow has just as good a right to live as we have, and that we should be his friend rather than his enemy. That there is a better chance to make a living when your friends are in business as your competitors than there would be with your enemies as competitors.

UNION AND STRENGTH.

And then there is this most important fact to recognize, that in union there is strength. Not for the purpose of browbeating, but for the purpose of asserting our rights in such a way that they will be recognized and respected. We must ever take into consideration the weakness of humanity, and, in fact, of all living things—that the strong will impose upon the weak. And so we—the retail trade of the country—the little fellows, need to associate ourselves together that our wants may receive a respectful hearing and that our need be recognized. But some may say, "Where is the profit in my coming a long distance to attend a State association? When I go home I am out so many dollars. Where is the profit?" The ills you came here to correct did not come about in a minute. They are the growth of years, and to counteract them and to neutralize their power for evil will take a long time. So patience must have her perfect work if anything is accomplished. Whatever remedies we undertake to apply must be applied with a power too strong to be overcome by the evil. We must expect resistance; but if our union is strong, if our organization is perfected, and if, not least, our cause is just, we will finally crown our efforts with victory, and piracy and misstatement and misrepresentation will have an end.

The convention then went into executive session.

WEDNESDAY AFTERNOON SESSION.

At the afternoon session J. M. Killin of Pueblo addressed the association on the "Colorado Jobber," as follows:

The Colorado Jobber.

It pleases me to be with you at this second meeting of your association. It now assures its success; it is a positive thing. At your next meeting in Denver in February I hope to see several hundred. I am as positive of the success of this association as the criminal was of the disagreement of the jury before whom he was tried. This is supposed to be a trial that is among one of the possibilities of the next 20 years. The trial had lasted several days and had come to an end. The judge had charged the jury, and they had retired to the jury room to consider and render a verdict. The criminal stood by himself in an apparently gloomy mood, and his attorney went up to him and told him to be cheerful, as he thought the strength of his argument had won some of the jurors, and the least he could expect would be that they would disagree. The criminal, looking up at his attorney, said: "Yes, it is a lead pipe cinch that they will disagree." The attorney looked at him in astonishment, and he was so taken by surprise he hardly knew what to say; but being a professional man, he had to say something. He said: "I think so myself, but what makes you so sure?" "Why," he says, "can't you see that two members of that jury are a man and his wife?"

Now, gentleman, your worthy president has given me the subject of "The Colorado Jobber," and I think it more fitting than the Eastern jobber, but do not at present see how we can get along without the Eastern jobber. They are a class of gentlemen it is a pleasure to meet anywhere, and it is a genuine pleasure to meet men of the caliber of those large Eastern jobbing houses of St. Louis and along the Missouri River.

I wish to say that so far as the jobbers of the West are concerned, I think the Colorado jobbers occupy the same position toward this territory as the Missouri River jobbers did 20 years ago. The Colorado houses are getting the same hold the Missouri River houses had years ago. The houses of this State are growing proportionately with the houses of the East, and we can point with credit to several of the houses we have. One of our houses in Colorado now has a large catalogue, and it is no doubt to be found on the desk of every one in front of me. I do not wish to draw the line in any way, shape or form, but I do not wish to have the Colorado jobbers appear here as objects of pity. We have retail departments for home use, and there is where we make our money, in spite of the friendly feeling that exists between the Eastern jobber and the Western. I will cite a few advantages we have over them:

In ordering goods from a Colorado jobber you get your goods within a few days, instead of days or weeks. The Colorado jobbers, like Jones, "he pays the freight." You have your option of 60 days or 2 per cent. discount for cash. Either way you get the benefit. If you take advantage of the 60 days, then you have 60 days on your freight instead of having to pay spot cash when received. I don't want to appear to be too strong in order to make comparisons; sometimes you have to strengthen up the argument a little bit.

Privately, I think the Colorado retail Hardware dealer, everything being qual in the way of prices, terms, &c., who sends his orders to a distance instead of buying them from the home dealer places himself in the same position as the consumer who buys of the Eastern catalogue house instead of buying of the home dealer. That may be a little strong. The more the Colorado jobbers are encouraged the larger stock they will carry.

Only a few years ago no one thought of buying his stock at home; to-day 75 per cent. is supplied by the Colorado jobbers. The Colorado jobber gets his profit out of the small additional discount he receives in tonnage and freight, and is willing to take these small margins as

his share of profit. I have had a little correspondence with quite a number of the Eastern houses, and it seems to be the sense of all of them openly to agree to protect the retailer.

(In support of this statement the speaker read a letter from a leading manufacturer.)

Now, gentlemen, this is one of the strong points I want to make here to-day. It has always been my policy to protect the retailer, but there are a number who do not; but it is coming to the point where I believe that protection can be enforced, and along these lines I have prepared this little resolution, which I shall leave to your consideration:

Resolved, That it hereby is, and in the future shall be, the sense of the Colorado Retail Hardware Dealers' Association, collectively and individually, that they extend their patronage and give preference in the purchase of their wants for Hardware to the manufacturers and jobbers who have in the past and will continue in the future to show substantial evidence of their appreciation of the business received, and to be given, by protecting the retail dealers to the extent of referring all inquiries or orders received from customers to the local dealer or deale s in the town or locality from which the inquiry is received.

In conclusion, I will offer a little toast:

"Heres' to you in bright, sunny weather;
Here's to you in dark, cloudy weather;
In sunshine or in rainy weather,
Here's to the Colorado Hardware Dealers
Now and forever."

There being no discussion of the address of Mr. Killin, next in order was the reading of a paper by L. C. Jakway of Durango. Mr. Jakway not being present, the paper was read by the secretary. It was as follows:

Loose Leaf Forms and Methods of Keeping Accounts.

While various manufacturers have been setting forth the advantages of Loose Leaf systems for years, the average business man has "shied" at them as some new fangled complicated scheme needing an expert bookkeeper and red tape without end. Four years' experience with loose leaf books and forms have convinced me that it is the only system adapted to a business carrying such varied lines as Hardware embraces. Like most new things, a strong prejudice exists in favor of old methods that are well understood, and, for want of knowledge of something better, we are apt to stick to old lines. But these are days of expansion, and a dealer with a small stock one year may find conditions warranting a business of many times the original size next year. Warehouses have to be provided for, usually located at some distance from the retail stocks; large store rooms are required, extra clerks are added, goods are delivered for miles, necessitating more teams; new lines are found to be advisable to take on to keep pace with the procession, and suddenly the proprietor finds he has so much business that the bulk of his time is taken up with buying goods and attending to correspondence, so that he cannot watch small details, and so much for his assistants to do that it is impossible to keep track of stocks, particularly if sales are made from branches, or if cash sales of goods delivered are not itemized.

Nothing is more discouraging to an employer than to find that he is

OUT OF STAPLE ARTICLES

simply for want of a memorandum of stock in time to order. Nothing is more disastrous than failure to deliver goods on time that have been sold. It seems to be an unwritten law that anything that cannot be found elsewhere should be kept in a Hardware store. The name "Department Store" would not do a modern Hardware store justice. Any ordinary man could not commit to memory the names of all the departments. The writer recently helped inventory a very ordinary stock of Hardware in a mining camp of this State, and, in using the utmost care in condensing the work, over 12,000 entries were made. To simplify the methods of handling such stocks, and to devise means of overcoming every obstacle as met, has been the writer's earnest effort for the past ten years.

WE STARTED OUT

as, I venture to say, nine out of ten business firms do, by having the usual day book or blotter, sales book or journal, a cash book and a ledger. As lumber dealers of about five years' experience, we had found that delivery books printed in triplicate with the carbon sheet, in connection with the other books referred to, well adapted to that business, so we continued it when we added Hardware and other lines. In a short time a telephone service was installed in our city, and we soon found a great many orders coming in to us by this modern convenience. But we found if we were to keep proper records of our business we must have additonal office force, which meant more expense, and it was to avoid this and yet to maintain a complete record and system that we began to investigate the various methods suggested by Hardware and lumber journals and manufacturers of stationery. So far as I know, the credit for improved methods is due mostly to the manufacturers, as I have yet to find what I call a complete system set forth in any of the trade journals.

To go back to the telephone, the history of an order was about as follows: The order was taken on a scratch pad (wrong to start out with, as by all means a telephone book should be kept at every telephone for all orders); from the scratch pad it was copied to the day book; from the day book to the team delivery book; next (after some usual corrections had been made after delivery) it was copied in the sales book, and finally in due course reached a ledger page. During the time the order taken by telephone is being entered a customer in the store calls to leave an order, so after a while a second day book is started for the store, and if the business is of much magnitude a third is soon found necessary, and the first time a customer wishes to refer to his account all of the different books have to be rounded up, until a man's patience is tried in trying to ascertain where a certain item was delivered on a certain day, by whom ordered, delivered and receipted for. What would happen with a loose leaf system would be as follows: Blocks of bills, printed in three different colors, provided with carbons, are distributed at the 'phone, at various places in the store, at the warehouse, or wherever goods may be sold, regardless of quantity, and sufficient for as many clerks as the business may require. These bills should have ample space for delivery or shipping instructions, how order is received, by whom received and delivered, date and hour.

THE ORDER IS TAKEN ON THESE BILLS,

the duplicate and triplicate going to a delivery or packing clip, the original never leaving the store. The order is never copied, our experience proving that more mistakes arise from copying than from any other cause, besides the waste of time and material. Duplicate and triplicate bills are sent with all deliveries, the duplicate being left with the customer, the triplicate receipted and returned to the office, where it is compared with the original, any changes corrected, and these copies filed in separate binders. Three writings have been saved. The account could now be posted direct to the ledger, but the custom of rendering a monthly statement itemized has been so general that most firms find it advisable to copy all daily bills to a regular bill head form printed, perforated and bound with a carbon and sheet of blank paper which constitutes a permanent binder. Bills being written up daily, customers' bills for the month's purchases are always up to date, so that the full itemized bill is always ready, and at the end of the month is all made out ready to be footed and torn out, and the footing only posted, requiring one posting a month for each account.

THE FOOTINGS ON THE CARBON COPY

may be carried forward monthly to show the monthly and yearly sales, unless these are carried through the latest type of cash registers, as some prefer. A business man of unquestioned ability said to me recently that he liked to have a ledger last indefinitely, and showed me a large cumbersome affair, with dirty leaves and dead matter enough in it to warrant sending it to the undertaker. With a loose leaf he would take out and file away at stated intervals all accounts that had been closed, carry to a suspense sheet old delinquent accounts, and he would have his ledger filled with live, active business only, and one that would outlive him.

Fully as great a convenience is the loose leaf system as applied to other departments. When we first started our cost book we bought the largest and best bound one that we could find, and before it was half filled we found ourselves erasing and correcting that book, and finally discarded it the moment we saw a loose leaf. We have used these books three years. Instead of having one book, which is usually at the wrong end of the store, we have four cost books, and the four cost us no more than the one large one we had formerly. Four copies are made at one writing, either by typewriter or pencil, and all market changes are made by insertion of new sheets. Cost, job, wholesale and retail prices are given on all articles entered in the cost book, and a copy, together with the stock book, is always within reach from the telephone.

THE STOCK BOOK

is almost equally important. A representative of a well-known Stove manufacturer said to me recently that he did not get a certain dealer's order while in this city about a month ago, because he had to take stock and see what Stoves he carried over. I asked if he did not keep a stock book, and he said, no. Numerous dealers have told me that they did not believe a stock book could be kept that would be any good. On the contrary it can, and would be, if started right. All goods kept in warehouses, and a large part of those in basements as well, the same lines on the floor, should by all means be kept in a stock book. To keep the stock book up to date it should be checked against daily sales, and every sale made from a branch yard or warehouse should be itemized. Also all sales of such goods as are delivered from the store are entered on the daily bills, and the only possible leak would be a purchase that might be rung up in the register and no itemized bill given; but such sales are usually for small articles not, as a rule, carried in stock books. Occasionally discrepancies creep in, but not in any degree to overcome the great advantage of being able to tell in a moment how many rolls of a certain kind of Paper, or barrels of Cement, Stoves, Refrigerators, Nails, Wire, or a hundred different things you may be asked about by some customer at the other end of a long distance wire, are in stock, and if you don't know, and you competitor does, you are likely to get left the next trip.

Stock books are best started from inventories, and certainly no system compares with the loose leaf for this work. Any number may take stock at the same time in different places. Sheets are assembled, numbered and filed in a binder which will hold several years' work. Each inventory should be provided with an index, which renders the inventory very valuable throughout the year.

No matter how good your books are, if you are not using a loose leaf I would order immediately. In my judgment it is the best investment one can possibly make. You will find it economical in the end, in not only the saving of stationery but of valuable time. We all know the value of the original entry. Formerly, if we had occasion to go into court, we had an express wagon to cart the books. Now I stick a few loose leaves in my pocket and our books are not inspected by a judge or jury, but only the account in question.

ONE WORD OF CAUTION.

If you adopt the loose leaf system of sales and use it, as you are likely to do, for receipts, cash sales, &c., be sure to have the bills numbered by the printer and never allow an original or triplicate to be destroyed. Some may be spoiled by clerks, but those should be marked void and put in the files in regular order. A triplicate may be spoiled occasionally, but for such cases you have the original. I understand it is the custom of some users of the loose leaf daily charge slips to number the bills after reaching the office and having been put in the file. To such I would say we paid dearly for our experience in this respect, and since that time all our bills are numbered and we experience no difficulty in keeping our files in shape. Without being numbered it is possible for any employee to destroy any amount of bills without detection. There is nothing safer than the carbon receopt if it is numbered, but without numbers, with the other copies destroyed, the chances of detecting dishonest practices are very slim.

In conclusion, I would say that these remarks are based almost entirely upon our own experience, and I would be glad to hear from others, or have the subject discussed with a view of bringing out features I have omitted or am not acquainted with.

I had some hesitancy in choosing such a dry subject, but in our section I have found so few merchants using forms that are labor saving and up to date that I could thing of nothing in the range of my acquaintance with the trade where reforms are so urgently needed as in a thorough comprehensive system of accounts, giving at once all the information that could be reasonably expected in a business with such diversity of lines and yet so systematized that almost any employee can ascertain in the least possible time the information desired.

If I have made any suggestions that lead up to an investigation of a system that I believe will be almost universally adopted and commended I shall feel well rewarded for my efforts in this direction.

Address of W. M. Glass.

W. M. Glass of Lee-Glass-Andreesen Company, Omaha, Neb., who was invited to attend the convention and make an address, was then presented by President Branson. Mr. Glass spoke as follows:

I feel that it is indeed an honor to be permitted to say anything to so intelligent a body of men as I see before me to-day. Through the kind invitation of your worthy president I am permitted to-day to give a few of my ideas in relation to the jobber and the retailer.

The relation of the jobber to the retailer is an interesting study, and their relations ought to be and are very important ones. There could be no jobber without the retailer, and the retailer would find it very awkward without the jobber. They are both a necessity to the successful existence of each other.

THE JOBBER'S MAIN RELATIONSHIP TO THE RETAILER

is promptness in shipments and ability to fill orders completely. The demands of the retailer are growing greater and greater each year, and under these conditions the jobber is compelled to give better service and deliver goods in better shape than heretofore. The service must be quicker and stocks must be better assorted and larger. It is the jobber's province to assemble the thousand items from as many different sources and distribute them through the retailer. The jobber is a convenience for the benefit of the retailer (and incidentally some benefit to himself), and the interests of both being mutual, the relations are harmonious, and there should be no cause for strained conditions.

I think the retailer, as a rule, considers the jobber as the legitimate and most accessible source of supply. The retailer would find it awkward indeed without the jobber, for he cannot afford to send away down to Connecticut or Pennsylvania for one dozen Rim Locks and one dozen Mortise Locks, or to Milwaukee or St. Louis for one dozen Pie Plates and one dozen Galvanized Pails; although, if any of you are in the market for a case of Locks or a gross of Galvanized Pails, you will find numerous factories willing to accept your order direct. You all know the catalogue houses have found open arms among the manufacturers.

IT IS QUANTITY ONLY THAT MAKES A JOBBER

in the eyes of some of the manufacturers. It is purely and simply volume that marks the line. So if your business is large enough to divide your purchasing up, and the manufacturer agrees with you, then you are a jobber and your troubles will have just begun. But the good judgment of the retailer will not allow him to be carried off his feet by the alluring prices quoted to the quantity buyer and be led into taking on gross lots when dozen lots would suit his capital and demands much better. You cannot do without the jobber. You must have a source of supply near by. You make your money on what you sell and deliver, and not on what you have *en route* or what you have bought at a bargain and which was not shipped until the season was nearly over. You have troubles enough already without adding thereto the terrifying task of buying each item only from the house that makes it.

CO-OPERATION OF RETAILERS AND JOBBERS.

The formation of your association was certainly a

step in the right direction, and must inevitably lead to a clear defining of the relative positions to be occupied by the manufacturer, the jobber and the retailer. I hope that retail associations will continue to be formed, and that they will exert their influence for the benefit of their members, and through the medium of these associations establishing relations, alike friendly and profitable to all.

As far as the question of the relation between the jobber and the retailer is concerned, I think the question of organization must be carried back of the retailer to the jobber, in order to bring about the full and perfect results which your association is trying to accomplish. We have for years been suffering from unintelligent and greedy strife for trade. The manufacturer has encroached upon the jobber, and the jobber upon the retailer, and any movement that will tend to bring the distribution of Hardware into its proper channels must be hailed with delight by all well meaning men.

The National Hardware Association (of which my house is a member and has been since its organization) has for several years been endeavoring to hold the distribution of Hardware in the proper channels, and has held that any course of action which did not recognize this important principle was detrimental to the interest of the manufacturer, jobber and retailer, and through this organization we are and have been endeavoring to benefit the retailer.

CATALOGUE HOUSES.

In the financial success of the mail order and catalogue houses lies the danger to individual and local enterprises to-day. This matter continues to be one of importance and their competition a source of difficulty to the retailer. Signs of relief, however, are not wanting, as assurances have been received that some manufacturers have realized the loss which they have indirectly caused the retailer in many sections of the country in supplying the catalogue houses at low prices. The National Hardware Association has been, ever since its organization, making a strong effort to reduce this class of competition. About the middle of May the Executive Committee of the National Hardware Association met the officers and a special committee of the National Retail Hardware Dealers' Association in Philadelphia. One of the main topics discussed at that meeting related to the question alluded to, and plans were adopted which I hope (through the co-operation of the two associations) will reduce the evil effect of this class of competition materially. I believe the retailer can safely rely upon the sincere assistance and co-operation of so powerful a body as the National Hardware Association, and were all jobbers members of this association many of the troubles of the retailer could be adjusted, and the manufacturers could control and regulate their products and prevent the demoralizing effect of the prices made by the mail order and catalogue houses by shutting off their supply, if necessary.

With faces turned toward the bright future and hearts full of hope, let us look for that new and enlightened relationship upon which we may soon enter, a better feeling between the jobber and retailer, a relationship most cordial, and a spirit of mutual helpfulness.

Brief addresses were made by a number of gentlemen, including G. W. Gladding of E. C. Atkins & Co., B. Fred. Tritch of the Geo. Tritch Hardware Company, J. M. Killin of Pueblo, Mr. Meservey of Lowell & Meservey Hardware Company of Colorado Springs and James T. Newell of *The Iron Age*.

Resolutions.

The Committee on Resolutions reported the following, which were adopted unanimously:

Whereas, W. P. Bogardus of Mt. Vernon, Ohio, President of the National Retail Hardware Dealers' Association, has shown his great interest in our young association, and desires to encourage us in the good work by making this long and tedious trip to be present with us at this meeting;

Resolved, That the thanks of this association are most gratefully extended to him for his presence, for his very able and inspiring remarks, and the best wishes of this association attend him and his excellent wife for a safe and pleasant return to their distant home.

Realizing the active interest the Hardware Trade journals constantly manifest in our association, as well as all other State Hardware associations, and appreciating their ever ready willingness to give prominence in their columns to our proceedings and announcements, as well as any association matter, be it

Resolved, That this convention extend a vote of thanks to such journals for their courteous assistance, and we heartily recommend to every member of our association the regular reading of such journals, through the virtue of paid up subscription to same, and we, your committee, would especially recommend a vote of thanks to *The Iron Age* for the presence at this meeting of their able representative, James T. Newell.

Resolved, That it is the sense of this meeting that no dealer should quote or sell a consumer in a town or city other than his own, unless the price quoted is at least equal to that established by the local dealers of said town or city.

We most emphatically protest against the procedure of the jobbers of Hardware in this State who exceed all bounds of legitimate business principles in not only quoting and selling the consumers, but sending their representatives to solicit business from them. We believe this association should take immediate steps to correct this evil, and to that end would recommend that a conference committee be appointed to meet the Denver Hardware jobbers some time during the present month, when this lamentable situation can be adjusted to the satisfaction of all.

We would advise that every effort be made to increase the present membership of the association, that being the main road to strength and influence.

Whereas, Some of the merchants whose principal business is the sale of lumber and accessory lines in towns within Colorado where exclusive Hardware stores are maintained are carrying stocks of Nails, Locks, Butts and other Builders' Hardware, also Barb Wire; and

Whereas, Such dealers usually cut the profits off the price of such Hardware in order to effect the sale of their principal lines; be it

Resolved, By this association that such conduct of their business is inconsistent and not in line with fair business methods, and we protest against such unfair competition.

Upon the suggestion of the president, a rising vote of thanks was extended to the dealers of Colorado Springs for their hospitable entertainment, also to the Alamo Hotel and to the railroad companies for making reduced rates.

Grievance and Conference Committee.

After a good deal of discussion on the matter of conference and grievance committees, the following motion was carried:

That the president appoint a committee of three who, in conjunction with the secretary and president, shall constitute a Grievance Committee, the appointment to continue for the balance of the fiscal year.

The motion was carried by a unanimous vote.

Upon the question of the Grievance Committee constituting the Conference to meet the Denver jobbers a long discussion was had, which was finally closed by the adoption of the following motion:

That the Grievance Committee also constitute the Conference Committee, and that this committee be appointed for the balance of the ensuing year.

The resolution suggested by Mr. Killin in his address, as above, was then adopted by a unanimous vote.

An executive session was then held, after which William Woodside of Silver Cliff moved that a vote of thanks be extended to the president and secretary of the association, which motion was seconded and adopted by a rising vote, the question being put by Mr. Woodside.

The convention then adjourned *sine die*.

CONVENTION NOTES.

After the opening session of the convention on Tuesday afternoon the delegates were entertained by a trolley trip to points of interest in Colorado Springs and Manitou. Wednesday morning special carriages were in waiting at the hotel for the ladies to conduct them to points of interest in the vicinity. Wednesday evening was spent in a most enjoyable way at the Broadmoor Casino with dancing and music, and before home coming a substantial luncheon was served.

Thursday was the banner day of entertainment. The delegates left on an early train over the Colorado Springs & Cripple Creek Railroad, which passes through 40 miles of the finest mountain scenery in the State. On arrival in Cripple Creek, the great gold camp, provision for

luncheon had been made by the Hardware and lumber dealers of the city and was served at the National Hotel. Immediately after luncheon special trolley cars were taken for Victor, where arrangements had been made for a complete inspection of the Gold Coin Mine. After looking over the wonders of the power plant the visitors were taken down to the first level of 120 feet, and were conducted by the company's electric train service through the cut, a distance of 3876 feet, to daylight. This particular mine is recognized as one of the finest and most substantially equipped in the entire country, and the privilege of seeing the wonders of the property was greatly appreciated by all. A hearty vote of thanks was tendered to F. M. Woods, general manager, and F. M. Symes, superintendent, for their most generous courtesy.

The many favors and attentions of the Hardware and lumber dealers of Colorado Springs, Cripple Creek and Victor were much appreciated.

The Colorado and Wyoming Lumber Dealers' Association met at the same time and place as the Hardwaremen, and in the matter of entertainment both bodies with their ladies mingled.

The interests of E. C. Atkins & Co. of Indianapolis, Ind., were ably represented at the convention by G. W. Gladding, who is widely and favorably known. His pronounced popularity among the dealers makes his presence an always welcome addition to these gatherings.

John J. Harllee & Co., manufacturers' agents' of Denver, Col., were represented by I. N. Tooke, one of the most popular Hardwaremen in the Western country. In addition to the several well-known factories this firm act as sales agents for in Colorado, Wyoming, Utah, New Mexico, Arizona and Idaho, they have just added the Republic Rubber Company of Youngstown, Ohio, makers of Mechanical Rubber Goods. On July 1 a Utah branch office was established in Salt Lake City, under the management of J. M. Barlow, formerly of Clark, Eldredge & Co., Salt Lake City.

Besides the delegates the following gentlemen were present at the meeting:

C. G. Betts, Detroit Stove Works, Detroit, Mich.
John J. Dillon, Dillon Hardware Company, Denver, Col.
W. M. Glass, Lee-Glass-Andreesen Company, Omaha, Neb.
G. W. Gladding, E. C. Atkins & Co., Indianapolis, Ind.
J. M. Killen, J. M. Killen & Co., Pueblo, Col.
Kellogg & Stokes, Denver, Col.
W. B. McSorley, Majestic Mfg. Company, St. Louis, Mo.
W. B. Rowe, J. M. Killen & Co., Pueblo, Col.
I. N. Tooke, John J. Harllee & Co., Denver, Col.
B. Fred. Tritch, Geo. Tritch Hardware Company, Denver, Col.
W. O. Vinacke, Lee-Glass-Andreesen Company, Omaha, Neb.
A. J. Wright, Lockwood Mfg. Company, So. Norwalk, Conn.
James T. Newell, *The Iron Age*, St. Louis, Mo.

MILLERS FALLS COMPANY'S NEW CATALOGUE.

MILLERS FALLS COMPANY, Millers Falls, Mass., and 28 Warren street, New York, have just issued catalogue No. 28, 78 pages, of fine Mechanics' Tools and Light Machinery designed for working wood and metals, which they are sending to all customers of record. Others interested in this line of goods will be supplied on application. The line includes assortments of Bit Braces, Auger Handles, Drills in great variety, Hand Boring Tools, Screw Drivers, Chucks, Star Hack Saws and Frames, Butchers' and other Saws, Lathes and Scroll Saws, Tool Holders, Carving Sets, Levels, Grindstones, Miter Boxes, Vises and a number of specialties.

THE TRUSS & CABLE FENCE COMPANY, Cleveland, Ohio, formerly of Hornellsville, N. Y., have just secured as Pacific Coast representatives the Pacific Hardware & Steel Company of San Francisco, Cal., who will soon have branches at Portland, Ore.; Los Angeles, Cal., and Seattle, Wash. They will carry at all times a stock on hand so that all coast orders can be filled from any one of the above points.

BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE, NORFOLK ST., LONDON, W. C., July 4, 1903.

The Week's Hardware Trade.

THE turn of the quarter has led to some slight stimulation of business, but at the moment it is irregular and spasmodic. The brass trades are well employed—indeed, at the present moment there are more workmen in employment than at this time last year. No particular branch is doing exceptionally well, but all branches are fairly busy—Brass Foundry, Bedstead Mount, Case Tube and Metal Rolling. The improved weather has enabled builders to push on with their operations, and this has led to a fair demand for Bolts, Hinges, Window Catches, &c., while Chandeliers, Gas Fittings, Fenders, Curbs and Fire Brasses are in improved demand. Manufacturers are, however, still harassed by the uncertain state of the copper market. In fancy goods there is but little doing. We are still suffering from the glut caused by the abortive coronation festivities of last year. The Gun trade is at the present time in rather a poor way. This is mainly caused by the change of pattern of the service Rifle, the final details of which are not yet completed. In the cheaper class of Guns there is keen foreign competition, both at home and in foreign markets. The subsidiary industries connected with Rolling Stock, Wheels, Axles, Springs, and so on, are benefiting by the prosperous state of the main business. South Africa and South America are the best customers in these lines. Hardware, generally speaking, is quiet.

The season demand for all kinds of Implements required on the farm and in the garden is described as a fairly good one. The improved prospects of a heavy hay crop caused an exceptionally brisk inquiry for Hay Forks and other hay making requirements. As a rule, distributors were anticipating a rather quiet time, and have had to replenish their stocks. On account of the forward state of the crops the sales will be over probably earlier than usual. Machine Knives, Reaper Sections, and other similar requirements have been ordered very carefully, the disposition all through the country being to keep down stocks. Retailers, however, expect manufacturers to be in a position to meet their wants with all promptitude, whatever they may be. A very large trade is being transacted in light steel Agricultural Tools. They were introduced into this country from America, and for a time almost commanded the market. Local houses took up their manufacture, and have not only won back their trade in these goods in this country but are more than holding their own abroad. They are not only better made and of approved patterns, but they are not more expensive.

Makers of Edge Tools are in receipt of good orders from South Africa and South America and other oversea countries, and a large quantity of road and railway making Tools is being manufactured. For Stamped Hollow Ware there is some demand, and japanners are fairly busy on Trunks and similar articles. The Lock trade is not doing very well just now, only the commoner kinds being required. Motor Car Accessories are in big demand, and in my opinion if American makers have anything to offer in this line they should waste no time in letting us know of it.

Sheffield Exports to the United States.

If attention has not already been drawn to it, readers of *The Iron Age* should watch the extent to which Sheffield manufactures are still in demand in the United States. For the year ended June 30, 1903, the United States imported from Sheffield goods amounting in value to the substantial sum of $3,055,000, which is an increase of $510,000 upon the previous year. Steel is the largest item in the returns, the value of this import being $2,222,000, as against $1,837,000 in 1901-1902. Cutlery increased from $375,000 to $410,000. A very considerable portion of the total is derived from material used for Hafting Cutlery, nearly all of which had, in the first instance, been imported into Sheffield from foreign countries, and which must, therefore, rank as, in a sense, a re-export. For instance, Mother-o'-Pearl shell accounts for $40,000, Horn for $71,000 and Stag Horn for $8000. This business ap-

pears to be increasing. Other items of interest are: Edge Tools and Razors, $35,000; Furnaces, $30,000 (against $600); Grindstones, $10,000; Shears, $65,000, and Measuring Tapes, $30,000. The exports to the States from the Sheffield district during the last quarter were valued at $780,000, against $750,000 in the previous quarter, and $655,000 in the corresponding quarter of last year. Cutlery has increased upon the previous quarter by $12,000, Butchers' Cutlery from $4000 to $10,000, Horn from $15,000 to $20,000 and Pearl from $15,000 to $45,000.

Peter Wright & Sons

An item of interest to many American buyers is the retirement from the well-known firm of Peter Wright & Sons, Anvil and Vise makers, at Dudley and Oldbury, of the proprietor, Charles Wallis, and his sons in favor of Isaac Nash of Stourbridge, an amalgamation having been effected of the two concerns. Charles Wallis has carried on these works at Dudley and Oldbury for nearly 20 years, doing a large trade in American and colonial markets; indeed, in spite of a high and avowedly protective tariff, their goods are in use in many workshops in the United States. The Oldbury works have been purchased by the Oldbury Wagon Company, whose property adjoins that of Peter Wright & Sons. This well-known old business has now been in existence for nearly 200 years.

Going to America.

William Cruger Cushman, who is established at Aldersgate Buildings, Aldersgate street, London, E. C., as an agent in Great Britain and Ireland for a number of American manufacturers of Hardware specialties, crosses to America next week to make further arrangements with his principals for an aggressive plan of campaign in the fall. He is also on the lookout for anything new and good in the way of labor saving appliances, especially for domestic use. W. C. Cushman has recently taken a partner into the business and is extending his business machinery in many directions. Already he has a large staff of salesmen covering Great Britain and Ireland, and his connection is growing. He is due to arrive in New York on July 20, making his headquarters at room 205, the Postal Telegraph Building, 253 Broadway, New York.

Prospects in Southern Spain.

There is no reason why in the near future American exporters should not successfully cultivate trade with Southern Spain. The following goods were imported into the district of Cadiz during the years 1901 and 1902. Explanatory notes are attached:

	Quantity.			Increase or decrease in 1902 compared with—		
	Average last 5 years. Tons.	1901. Tons.	1902. Tons.	Average last 5 years. Tons.	1901. Tons.	Character of trade.
Iron and steel.....	2,510	4,368	2,193	—317	—2,175	Plates and bars came from the United Kingdom and rails from Belgium.
Copper and brass....	47	35	78	+31	+43	The United States contributed two-thirds of this total, and the balance, excepting a very small quantity from France, was supplied by British firms.
Tin and tin plates...	23	30	34	+11	+4	The imports from Italy have increased from one-tenth to one-third on those of 1901, and those imported from the United Kingdom show a falling off of 50 per cent.
Paints and oils.....	139	105	87	—52	—18	Almost all came from the United Kingdom.

Staves are imported from New York and their price has risen some 50 per cent. in ten years.

Iron Hoops, which were formerly all imported from the United Kingdom, are now chiefly manufactured at Bilbao and Asturias. But when those of a better class are required they are bought in the United Kingdom.

Small quantities of machinery are imported for agricultural purposes, mostly from Germany. German firms supplying the machines send men who put them together and remain until they see them doing the work required. This attention of sellers to their clients seems worthy of note.

For Spain prices should be given, where possible, free of duty in Spain and in Spanish currency. Of course, being outside the metric system is a disadvantage for the American trader, and this can only be overcome by the labor of translating prices into the money of the country wherein it is desired to sell.

In most cases a buyer will purchase the article of which the sample is personally shown and explained to him, rather than the one of which he has no knowledge beyond its description in print in a foreign tongue. Travelers should be able to speak Spanish fluently and study Spanish ways. The offering of a cigarette is a small thing and seemingly unworthy of notice in cold print, and yet in Spain such courtesy, so universal, is never refused, while the trifling attention gains confidence, invites conversation and the way to business is paved. A commercial traveler should be provided with an inexhaustible supply of samples, for the actual sight of them, when well and courteously shown, is distinctly effective.

It may be useful information for travelers on business or pleasure to learn that a small but very seaworthy steamer, the "Joaquin del Pielago," leaves Cadiz three times a week for Tangier, Algeciras and Gibraltar, reaching the latter port in nine hours. It also makes the return voyage in the same time. A motor car omnibus leaves Cadiz for Algeciras on alternate days, and accomplishes the journey in 12 hours. Private carriages can be hired which will enable the traveler to perform the same distance in eight hours. Jerez de la Frontera is on the line to Seville, and can be reached in one hour and a half. The express train from Cadiz to Seville takes three hours.

The "Don Hugo," a passenger steamer belonging to the Rio Tinto Company, leaves Port Talbot for Huelva once a month. The voyage takes four days. This rapid and relatively cheap route to Huelva, Seville and the neighboring districts deserves to be better known to tourists and travelers, who at present have to suffer a long, trying overland journey, even when entering Spain via Gibraltar, in order to reach these destinations.

BUILDING HARDWARE IN NEW ENGLAND.

DEALERS and manufacturers of Building Hardware are complaining of the condition of the business in New England brought about by the falling off of the number of residences building this summer as compared with other seasons. The dealers attribute this condition to labor and lumber. The strikes and high wages of artisans employed on buildings have discouraged a great number of people who were planning to build homes or houses for rental, and on top of the labor situation lumber was never so high in New England as it is to-day. The price of plumbing for residences is also very high, partly due to the cost of labor and partly because of the prices of materials entering into the work. Were it not for new business blocks where very little lumber is required the dealers in Builders' Hardware would have been even worse off. Fortunately, as they express it, business blocks had to go up as long as structural steel was to be obtained. Some residences are building, of course, but the number is probably not one-quarter of what it would have been had not the cost been so great.

THE next annual meeting of the Michigan Retail Hardware Dealers' Association will be held on Wednesday and Thursday, August 12 and 13, at the Hotel Cadillac, Detroit.

THE TRAVELING SALESMAN HIS METHODS AND CONTROL

BY SAMUEL MASTERS.

CHAPTER XXIV.—THE SALESMAN'S CLERICAL WORK.

PERHAPS the greatest trial the jobber's salesman has lies in the amount of writing he is called upon to perform. It is no small task to write out orders properly after a busy day; there are times when to properly post a week's change sheets will require the greater part of a day. Then there are reports of movements to be made, letters written to his house and his correspondence kept up with his customers. So great is the burden that many a salesman finds his Sunday at home the busiest day in the week, and most of his evenings are spent with pen in hand.

Salesmen's Methods of Keeping Records.

Any one who has been present at the salesmen's annual convention in a big jobbing house will be impressed with the difference in the way the salesmen keep their catalogues. Some of them will have copied neatly in the margin of their books the prices on the various goods; others have the stock sheets and change sheets pasted between the leaves; still others have the sheets arranged alphabetically in a portfolio. Some of them will carry special catalogues of Enameled Ware, Nail cards and various other circulars giving new lists which displace those printed in the jobber's catalogue, while others will have taken the time and trouble to correct their house's book and keep its pages alive. Some of the men will have to hunt for every special catalogue of new goods as it is called for, while others have such literature so arranged in their grips that they can immediately find what is wanted. And it is frequently to be noticed that the best desk man is the poorest salesman.

Salesmen Not Bookkeepers.

A salesman is not necessarily a cleric. The two qualities are independent of each other, and the man of action who sells the most goods may lack the continuous application which enables him to keep his catalogue in best shape. It is highly advisable, then, that everything possible be done to relieve all salesmen of the drudgery of their book work, so that the man to whom such work is distasteful may not be hampered by his imperfectly kept records, nor the natural man of detail be tempted to expend too much time upon the dry bones of his work to the neglect of the taking of orders or cultivating the favor of his customers.

Catalogues Priced in the Office.

As a step in this direction several of the largest jobbers have two sets of salesmen's catalogues, one of which is constantly in the house being revised and corrected to date while the salesmen have the other set in use. These books are exchanged at frequent intervals, and fully two-thirds of the desk labor of the ordinary salesman is thus done away with. The loose leaf catalogues which are coming into use with the largest houses are a big step in the direction of time saving for the salesmen, as well as a help in keeping dead matter out of the catalogue and new goods properly included in the jobber's list of wares.

Slight Changes Unnecessarily Issued.

If some jobbers would use a little more discretion in issuing changes much labor might be saved. Many of the lines on which competition is keen require that minute changes in the prices be noted, but there are many others where a change of 3, 4 or 5 per cent. in the cost and selling prices will have no perceptible effect in the sales. There seems, in such instances, no good reason for making the change, particularly if the price has declined a trifle through the granting of an extra 2½ or 5 per cent. on such a non-competitive line. The jobber who will, when he can, add a trifle here and there to his profits on such goods at such times will also save tribulation for his men.

Correspondence with the House.

Correspondence with the house must be given prompt attention at all times. A salesman must do all that he can to keep on the best of terms with the sales department, and nothing will do more to that end than a prompt reply to all letters that require answers. The major portion of such letters refer to orders that are being held for additional information: to customers' claims for concessions that quote the salesman for authority, and to a multitude of similar matters that cannot receive attention until the salesman has been heard. Delay in replying means additional trouble with customers. An excellent plan is for the jobber to print on a special salesman's letter head, "Write your answer on the back of this," and then when the matter comes up for attention the sales department has both inquiry and answer on the same sheet. By properly keying his letter to the salesman, with the number or date of orders referred to, &c., it is easy to connect the letter with the other papers, and the house man has the whole matter readily in hand. In one sales department rubber stamps are used on such letters as the writer wishes returned with reply, the letter being signed with a stamp reading, "Answer on the back of this to ———," the writer's signature filling in the blank space.

Correspondence with Customers.

The average salesman writes many letters to his customers in the course of a year, and to facilitate such correspondence some of the best jobbers furnish salesmen with stationery bearing the salesman's name and return card and the name of the house represented. This gives the salesman an individual standing with the customer, and his letters have a semblance of authority which they do not have when written on hotel letter heads or blank sheets of paper. The expense is slight, but is well repaid by the hightened effect.

Personal Correspondence that Induces Trade.

The salesman eager to get trade will often find it to his advantage to write customers of changes in price on a line for which he knows they are in the market. A special bargain furnishes a text for other letters. If a customer has sent an order to the salesman's home address it must be acknowledged. If there has been a decline on season goods for future delivery it often devolves upon the salesman to tell the customer of the new price at which shipment will be made. Besides, every salesman has personal friends among his trade, with whom a correspondence is kept up in order to make his relations closer, or from pure friendship. All of this takes time, but it is well to follow it up closely. The various methods for reducing the salesman's clerical work in other directions in order to leave him as much time as possible for his correspondence are, hence, of value.

Copies of Letters.

It greatly facilitates matters if the salesman's equipment for correspondence enables him to make one or two carbon copies of each letter—one for his personal record and one to send to the house when advisable. It is also of value to the salesman if the sales department will extend a like courtesy to him. There is one house in which the department that cares for salesmen's orders makes it an invariable rule to write all letters to customers with a carbon copy, and these copies are sent to salesmen for their information, unless there is some special reason for not doing so. The collection department of this house pursues the same course. There is thus a full understanding between the salesman and the men in the house, and the salesman is prepared to support the action of the office with a full knowledge of the facts in any dispute. He also knows of quotations made, of cancellations of orders and of all other things that occur that may have an effect upon his sales. He is kept in the closest possible touch with the home policy and can act in full harmony therewith. This house have endeavored to induce the salesmen to make carbon copies of all letters to customers, but wtth different success.

AUSTRALIAN LETTER.

FROM A SPECIAL CORRESPONDENT.

TRADE generally has been very quiet, and there appears to be little possibility of any change for the next few months. Cable advices will have told you of the rise and fall of the Victorian railway strike. It only lasted one week, but absolutely paralyzed country trade during that time.

Several Hardware houses seized the opportunity to take stock, and so keep the hands fully employed. Weather conditions, so far, are favorable for an excellent harvest. Machinery lines and Heavy Hardware orders are few and far between. As a consequence, competition is unduly close. Black Fencing Wire (American), Nos. 8 and 10, has been in good demand, also German No. 8. Barbed Wire and Wire Netting have had fair sales. In general news, your cables have told you of the attempt to render the Customs act invalid. A decision was gained from the chief justice, and in its reversal by the full court the act was validated. The Royal Commission appointed to inquire into the advisability of establishing the iron industry by means of a bonus, or a protective tariff, is "still inquiring." Meantime half the iron workers throughout the States are out of work, though this is due solely to the drought and depression. Australia generally is at a standstill, travelers' sheets are light, and buying is merely of the day-to-day kind.

Actual Interstate Trade Near.

Interstate trade is coming to be an actuality. Firms in every branch of trade who have hitherto had to confine their operations to the State in which they were located, are now beginning to reach out for added business in more distant parts of the Commonwealth. On October 8 next the shackles absolutely fall off, interstate certificates will not be necessary and trade will be absolutely free within five States of the Commonwealth. The sixth, Western Australia, will not fall into line for another three years, having insisted, when federating, on a slowly descending scale of duties spread over five years.

Federal and Commercial Capitals.

The site of the Federal capital is not yet decided, and we are in no hurry for it. A matter of moment to the commercial world is the ultimate location of the commercial capital. This is not a matter for legislation, but is a question which can only resolve itself after the experience of years. Until the last few years the city of Melbourne has had priority of place as the chief distributing center. Aided by a succession of years of more than ordinary prosperity, and possessing energetic citizens, she assumed the lead in the early eighties.

But the prosperity culminated in a boom, the boom burst, and the lean years followed. Then the possibilities of the cheaper port of Sydney as a business center became more apparent, and the last eight years have witnessed a steady exodus, or transference, of headquarters from Melbourne to Sydney. Now, in every branch of trade, the opinion seems to be conclusive that the latter city has got a long lead of Melbourne, and will maintain it.

Sydney vs. Melbourne.

Possessing an ideal harbor for shipping, with deep water everywhere, and the city only 4 miles from the heads, the port of Sydney is a much cheaper one than Melbourne, with its long towage of 40 miles for sailing ships, its constant dredging, and consequent high imposts on shipping. Sydney must unquestionably be regarded as the future commercial capital, and its geographical position alone proves this.

It has always had the Northern rivers and the Queensland trade, and the bulk of the New Zealand and South Sea Island trade.

It is in the heart of the coal and iron deposits of Australia, and the near future will bring to its neighborhood the bulk of the distributing trade of the whole Commonwealth.

Preferential Tariffs.

The subject of preferential trade within the British Empire will be considerably further advanced by the time this advice reaches New York. At first sight, and from the purely Australian point of view, the scheme does not commend itself favorably to the folks "down under." Boiled down, it simply means a retaliatory tariff against Germany and America. Whatever effect may be wrought in the Old World, it is questionable if Australia would be likely to benefit. And for this reason: First, we must leave America out of the calculation, because she sells to us, but takes no products of ours in return. With Germany it is different. She takes directly from us 11 per cent. of our total exports, and indirectly possibly another 5 per cent., nearly the whole of which she admits duty free. Wools, skins, hides, pastoral products and minerals are exempt under present treaties, duty being levied, however, on wheat, tallow, meat and meat extracts. In 1901 she took from us £5,500,000 worth of goods and sent us £2,700,000 worth.

Germany would doubtless retaliate with a heavy tariff on the above $5,500,000 worth of imports if we were to differentiate against her, and thus open her door to our Argentine and American competitors. So that, probably, Australia will hesitate before entering into any tariff war against the world, even although backed with British prestige.

Customs Decisions.

Recent Federal customs decisions likely to affect American imports are as follows:

Roots' Blowers, small, used in forges, boilers and pneumatic tubes, 12½ per cent.

Grinding Disks.—The exemption, Division VI, does not apply to disks used in the treatment of grain.

Wheels, Steel or Steel Rimmed, &c.—Exemption will apply even if the Wheels are attached to the axles. The custom of the department to admit Wheels free and charge duty on the axles will therefore be continued. The exemption above mentioned does not apply to Cast Iron Chilled Wheels, even if of the same pattern and for the same purpose as the "steel or steel rimmed."

Pavement Lights, 20 per cent.

Mild Steel Bars, cold rolled and planished, 12½ per cent.

Terne plates free.

Butchers' Choppers, 15 per cent.

Electric Safety Lamps for mines, free.

Plated Washers and Rivets, free.

Scarifiers, for steam rollers, free.

New Zealand Prosperity.

New Zealand trade returns for the year ending March 31 show a very healthy increase. Exports, £15,000,000, as against £12,000,000 in preceding year. Hardware imports for the year figure out at £2,367,000, an increase of nearly £80,000 over the previous year, with values, if anything, ruling lower.

Messrs. Ayers & Henry of the firm of that name, representing various American houses in Australia, have left on a six months' trip to the country of *The Iron Age* and should be in New York about the middle of July.

Advertising Matter Must Be Invoiced.

Shippers to this country will please note that under a recent decision of the Controller General of Customs all printed matter inclosed with merchandise must be duly invoiced or is liable to confiscation. It will be dutiable at 3 pence per pound.

Market for Rabbit Traps.

Quite a big trade in Rabbit Traps has been done lately and merchants have had no complaint of them hanging on their hands. This rush has been caused by the large number of men turning to trapping rabbits for a living, as the price of meat has been so high.

Weakness of Die Stocks.

Many users of Adjustable Stocks and Dies complain about the strength of the ears or levers and the sockets where the handles are attached. The boys using them are not overcareful always, and will strike the lever a sharp blow with a hammer or other tool in the event of it sticking, and the consequence is that breaks frequently occur and a very difficult task to repair is the result. The handle sockets frequently break; in this case undue pressure has been given by perhaps a piece of pipe slipped

over the handle for extra leverage. Some of the Stocks and Dies that come here are now better made, and the improvement should be general.

English and American Pipe Contrasted.

As showing the contradictory statements in American and English goods, I heard two made a few days ago. One plumber said he would rather have American Pipe any time, as it needed no priming with the file to get the dies on—this meaning that it was thinner than the English. Another man complained of the English as there was not body enough in it and too thin. The American Pipe is more convenient to cut and screw by reason of its thicknesses—at least this is the opinion of a lot of our good men; but generally good English Tubes command 2½ per cent. better gross discount than the American.

Increased Care Necessary in Invoicing.

Quite a lot of trouble has occurred here by reason of the customs authorities having cause to doubt the correctness of invoices sent to merchants in freight charge matters. It is claimed by the department that actual charges for goods and freight must be strictly adhered to, and they claim that in case it is asked for, documentary evidence must be supplied. Shippers cannot be too careful in consigning goods and invoicing, taking particular care that absolutely all contents of packages are clearly shown. Any sample or presentation cabinets (for forward stocks in the event of a big order being sent) must be specified or else confiscation will likely ensue, followed perhaps by fine.

Leniency for Information Voluntarily Tendered.

A minute issued by the Minister for Customs on March 28 has cleared away some of our trouble, as it is now decided that a person voluntarily tendering to the Department information showing that error has been made will now not be prosecuted, provided it is shown that such tendering of information was purely voluntary and that no intent of fraud was committed.

The First Year's Experience With Arbitration Act.

We have just completed our first year under the Arbitration act, and the authorities claim a satisfactory state of industrial affairs through its operation. The figures indicate that about 36,000 of the workers of this State are now working under conditions imposed by the court, and it is claimed that to honest and conscientious employers (and there are many here) the act should be welcome, as it will put all employers on the same footing, and masters be assured of the fact that others must pay the same rate as they are subject to, and that the question of competition is reduced by one important factor. Some of the decisions apparently press very heavily on masters, but they were not arrived at without much serious consideration, some of the cases lasting weeks. The workers have apparently had far the best of it so far, and an improved rate of wages, hours and general conditions set down to guide the trades.

First Practical Test of Oil Fuel.

We have had our first practical trial with oil fuel on one of our ferry steamers, and judging by the reports it was quite a success. It was installed and tried on the Balmain Company boat, where a big passenger traffic is done, so the test will be watched with interest. The trial trip was well commented on, and with the exception of one or two minor details, such as increased poise, &c., the installation was received with favor, and it is quite possible that many such changes will be made soon.

Mining for the Year.

Our year's mining shows an unsatisfactory record, which, as the Under Secretary for Mines puts it, is accounted for by a combination of adverse circumstances—principally the drought and the low price of silver and lead. Our metal production for 1902 shows a decrease of £368,490 on the previous year. Gold shows an advance in 1902 yield, but this is accounted for partly by purchases of ore outside our State being brought here for smelting. Some of our copper mines have had to close down temporarily, but with a decent advance in market rates work is resumed and a satisfactory output made.

PRICE-LISTS, CIRCULARS, &c.

THE NATIONAL WIRE CORPORATION, New Haven, Conn.: Special price-list of Galvanized Telegraph and Telephone Wire and Wire Strand. This contains considerable valuable information, including the company's grades, table of weights and resistances, &c.

THE J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Catalogue illustrating Rifles, Target Pistol, Pocket or Bicycle Rifle, Single and Double Barrel Shot-Guns, Rifled Bullet Shell, &c.

E. C. BROWN & Co., Rochester, N. Y.: Circular illustrating Auto-Sprays, Atomizers and Horse-power Sprayers.

EDWARD F. SMITH & Co., New Haven, Conn.: Price-list illustrating Wire Dipping Baskets, Spark Guards and Fenders, Riddles, Coal Screens, Wire Cloth, &c.

THE AMERICAN STEEL & WIRE COMPANY, Chicago, Ill.: Catalogue devoted to Juniata Horse and Mule Shoes and Toe Calks.

THE PARIS MFG. COMPANY, South Paris, Maine: General catalogue and price-list of Boys' Wheelbarrows, Carts, Wagons, Spring Board Coasters, Camp Chairs, Lawn Settees, Sewing Tables, Step Ladders, Desks, &c.

OSWEGO TOOL COMPANY, Oswego, N. Y.: Illustrated price-list of Tools, including Tube Expanders, Screw Punches, Pipe Cutters, Pipe Vises and Kindred Tools for boiler makers, machinists and pipe workers.

THE VETTER DESK WORKS, Rochester, N. Y., New York office 102 Fulton street: Illustrated catalogue relating to the Vetter Card Index System, including Cards, Card Index Cabinets, Tables, &c.; also Catalogue B, devoted to Sectional Cabinets.

THE COSMOPOLITAN LIGHT COMPANY, 41-45 State street, Chicago, Ill.: Gas Fixture Catalogue No. 7, including, in addition to Gas Fixtures, Globes, Mantles and Arc Lamps. The company also issue separate catalogues of Mantles, Portables and Hydro-Carbon Gas Lamps.

THE HENDEE MFG. COMPANY, Springfield, Mass.: Catalogue illustrating and describing the Indian Motocycle. This is a gasoline motor, chain driven Motocycle, embodying features which the manufacturers claim to be peculiar to this machine.

OWOSSO MFG. COMPANY, Owosso, Mich.: Catalogue and price-list for 1903-04, illustrating Wood and Steel Blade Snow Shovels, also Boys' and Toy Snow Shovels.

CORTLAND FORGING COMPANY, Cortland, N. Y.: Catalogue B relating to Drop Forged and Electric Welded Carriage Hardware, Bow Sockets, Shifting Rails, Arm Rails, Top Joints, Canopy Top Standards and other Special Irons and Forgings.

THE BAILEY & BLENDINGER MFG. COMPANY, Woburn, Mass.: Catalogue illustrating Machine Knives, including Paper, Stave and Shingle, Veneer, Leather and Belt Splitting, Bark, Mill and Small Knives, &c.

MISCELLANEOUS NOTE.

Metal Furniture and Office Equipment.

The Berger Mfg. Company, Canton, Ohio, have just put on the market a line of metal furniture and office equipment, including filing cabinets, card index cases, flat and roll top desks, library and standing tables, chiffoniers and counters, made of steel. Among the advantages set forth in an illustrated catalogue devoted to this line, are the following: That steel furniture is many times stronger, more durable, more graceful and more economical than wooden furniture, or any other kind; that it economizes space, is light for its strength, unaffected by even the extremes of cold or heat, dryness or moisture; that it is fire proof, water proof, dust proof, rat, mice and vermin proof; that it does not warp or crack, and is a real protection to valuable documents. In regard to finish the manufacturers state by a special process of their own they have arrived at a very beautiful and artistic finish which it is their intention to adopt throughout the line, as it carries a high gloss, and yet is extremely durable and difficult to deface.

Vogt's Universal Vise or Clamp.

Smith & Hemenway Company, 296 Broadway, New York, have put on the market the Vogt Universal vise or clamp, for holding all sorts of wood or metal materials used by artisans and mechanics in the process of working,

Fig. 1.—Vogt's Universal Clamp.

illustrations of which are here given. The clamp is made in ¼, 5-16, ⅜, 7-16, ½, ⅝, ¾, ⅞ and 1 inch diameters, the rod increasing in length in proportion with the diameter. In use a hole is bored slightly larger than the size of rod, the rod is inserted and a tap of the hammer clamps wood, metal or other material in any position required. An eight-page folder issued by the company illustrates the

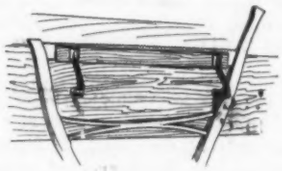


Fig. 2.—Holding Buck Saw for Filing.

clamp used in holding a buck saw for filing, as in Fig. 2, while Fig. 3 represents the clamp holding scaffolding in weather boarding work. Other illustrations show bench planes in position for leveling, holding cabinet work, shoe lasts, harness, boards, circular saws for filing, and a variety of odd shaped articles quickly held in place for treatment. A tap of the hammer, properly given, as quickly releases the grip. A clamp of this character can

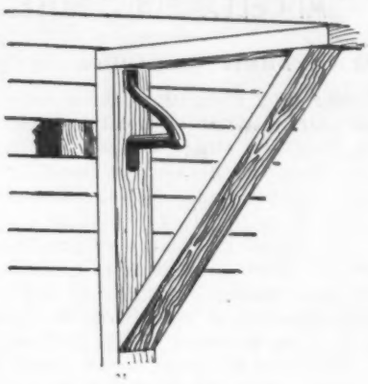
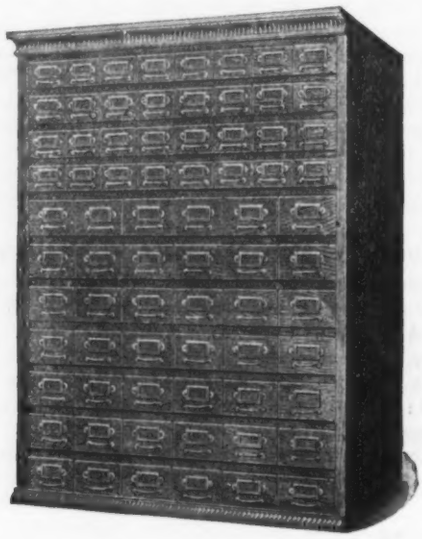


Fig. 3.—Holding Scaffolding for Weather Boarding, &c.

be readily carried about on jobs and used wherever a hole can be bored to admit the bolt portion, the natural spring of the rod furnishing the gripping principle.

The Heller Screw Case No. 1900.

The dust proof screw case shown herewith is being put on the market by W. C. Heller & Co., Montclair, N. J. The case contains 74 steel drawers, including divisions to make over 150 compartments, each one of which is designed to hold from 3 to 5 gross of loose screws.



The Heller Screw Case No. 1900.

The case may also be used for taps, dies, machine screws, &c. Each drawer is fitted with a bronze card clip and pull. The case has a steel back, and it is stated that the contents will be kept in the same condition as if the goods were in the original packages. The case is well made in white wood, stained any color, also in solid oak, golden oak finish. It is 40 inches high, 26½ inches wide, 11 inches deep, and weighs 100 pounds.

The Marlin 16-Gauge Repeating Shotgun.

The accompanying illustration represents grade A of a 16-gauge repeating shotgun, put on the market by the

The Marlin 16-Gauge Repeating Shotgun.

Marlin Firearms Company, New Haven, Conn. The gun has a special rolled steel barrel with a tensile strength, it is explained, of about 66,000 pounds to the square inch. The frames are blued, and the butt plates are rubber. The buttstocks are 13½ inches long, with 1⅝ inches drop at the comb and 2½ inches drop at the heel. Special hand made stocks of any dimensions will be made to order at a small extra charge. The full choked barrels are guaranteed to target better than 240 pellets in a 30-inch circle at 35 yards, using 1 ounce No. 7½ chilled shot. These barrels, it is remarked, are specially bored for smokeless or black powders, and are proved with excessive loads. Modified and cylinder bored barrels are furnished at the same price. The magazine holds five cartridges, and with one in the chamber gives six shots. The barrel is 26 or 28 inches, the gun weighing about 6½ pounds, made to take down. The makers state that this is the smallest and lightest weight repeating shotgun ever manufactured. It is not, it is pointed out, a 16 barrel on a 12 action, but a new, well balanced, properly proportioned gun that with modern smokeless powder enables a shooter to use a powerful load in a small shell and reduce materially the weight of shells and gun to be carried. It is pointed out that the small, light gun handles fast, and results in close holding and increased accuracy. The gun is also made in B and C grades.

The Burdick Cash Register Bank.

The Burdick & De Blois Mfg. Company, Hartford, Conn., are putting on the market the cash register bank herewith illustrated. This has been designed as a strong, serviceable receptacle for home savings, in combination with an automatic register of the amounts deposited in it from time to time. One-cent pieces, nickels or dimes are

Fig. 1.—The Burdick Cash Register Bank.

dropped into the same slot. After each coin is inserted a small crank is turned, which causes the coin to be deposited in the receptacle, and at the same time automatically adds its value to the amount previously contained in the bank, the total being shown on the register in large, clear figures. It is impossible, it is explained, to shake out or otherwise remove any part of the contents of the bank while it remains locked. The lock is an automatic device working wholly from the inside. The first coin which is put in the bank operates the lock, after which it is impossible to open the bank, it is remarked, until a certain amount has been deposited. The

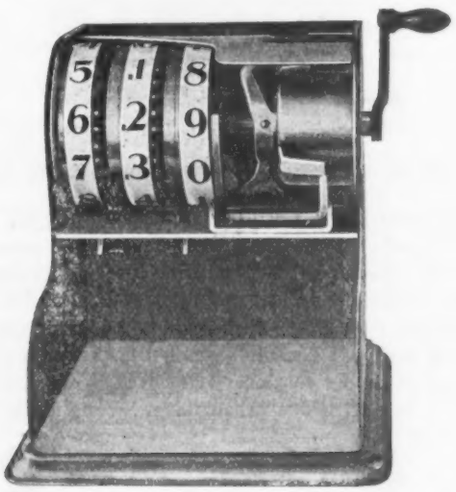
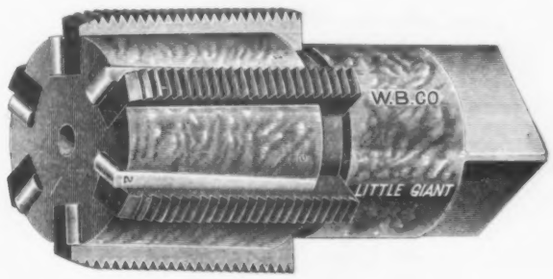


Fig. 2.—Interior View of Register Bank.

mechanism can be set to unlock after each dollar has been deposited, or only after the deposits amount to $5 or $10. After registering $10 the figures return to zero, when everything is in readiness to begin over again. The bank is referred to as not being a toy, but a positively working mechanical device of practical value and use. It is made entirely of steel, finished in oxidized copper, and, it is pointed out, constructed in a most thorough manner. The bank can be profitably used in every home, it is shown, being especially desirable for children, encouraging them to form habits of thrift and economy, and affords practical object lessons in addition and computation of values. The device is designed to retail at $2.50 each.

Inserted Lands Pipe Tap.

Wells Bros. Company, Greenfield, Mass., New York office in charge of A. Z. Boyd, 56 Reade street, have put on the market a new form of pipe tap, pattern of 1903, as here shown. This tap is made for tapping pipe 2½ inches in diameter and larger, to 10 inches, inclusive, increasing

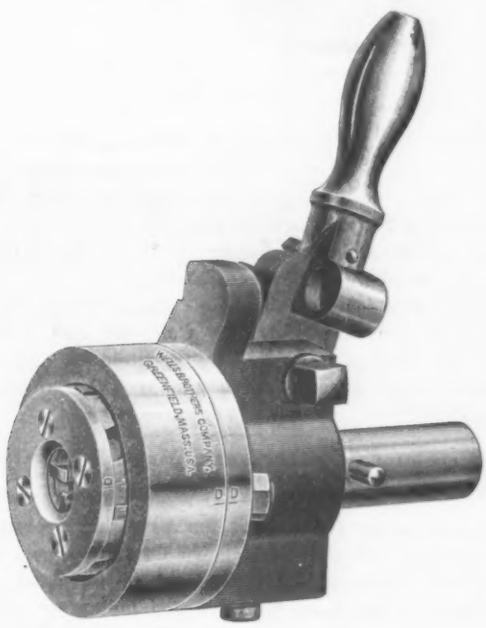


Pipe Taps with Inserted Lands.

by ½ inches to 5 inch and thereafter by 1 inch. Instead of making it of solid stock, it is made with inserted lands, as seen in the illustration. This gives better results, it is said, at less cost, because the finest steel is used for the cutting sections. Other features are that new parts can be economically inserted, they can be better and more easily ground and better tempered than when in a large single piece. These taps are carried in stock, both in Briggs' standard and Whitworth forms of thread.

Self Opening Screw Cutting Die Head.

Wells Bros. Company, Greenfield, Mass., New York office with A. Z. Boyd, 56 Reade street, are making the self opening screw cutting die head, as here illustrated. It is intended for use on the turret of band and auto-

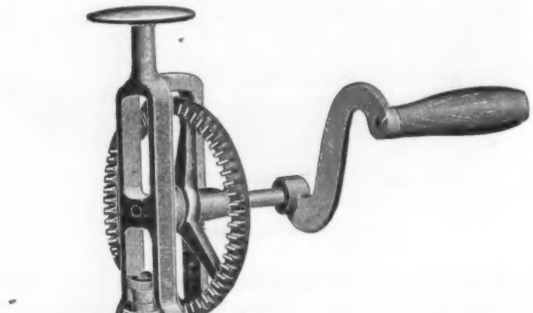


Self Opening Screw Cutting Die Head.

matic screw machines. It is furnished for cutting either right or left hand threads of the various forms, including also a great variety of forms of special threads. It is fitted with a micrometer adjustment, cuts close up to the shoulder if required and so specified for in ordering, and the self opening device can be set at any point desired. The sizes are ¼, ½, ¾, 1, 1¼ and 1½ inches, the diameters of head being respectively 2½, 3, 4, 5, 8 and 9 inches. In ordering care must be taken to indicate whether dies are wanted with U. S. S., sharp V or Whitworth form of thread.

The E-Z Mixer.

The accompanying cut represents a mixer having an egg shaped glass vessel, obviating seams and corners, in which the mixture can escape the whirling dasher and preventing leakage. It is pointed out that the device is simple in construction, having only two parts, and that it is easy to operate and to clean; also that it is provided with a powerful crank wheel. The mixer is designed for



The E-Z Mixer.

beating eggs, whipping cream, custards, churning butter and to be used for any kind of batter, mayonaise, special sauces and salad dressings, egg nog, &c. The mixer is made in a 3-pint size only, but the manufacturers state that the demand for a 1-gallon size for the use of clubs, hotels, &c., has been so general that they will supply a 1-gallon size for the fall trade. The mixer is offered by the National Mfg. & Supply Company, 301 Smithfield street, Pittsburgh, Pa. Geo. Borgfeldt & Co., selling agents, West Third, Fourth and Wooster streets, New York.

Excelsior Tweezers and Magnifying Glass.

The Coe Mfg. Company, 50 Warren street, New York, are putting on the market the Excelsior tweezers and magnifying glass, as here shown. It is designed for extracting hairs, splinters, &c., and is especially recommended by the manufacturers for mechanics, printers, jewelers, botanists, physicians, entomologists and others whose occupations require a pair of tweezers and mag-

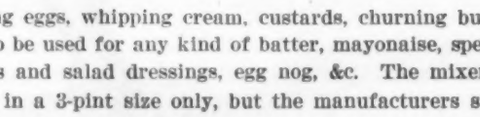


Fig. 1.—Excelsior Tweezers and Magnifying Glass.

nifying lens in one instrument, capable of being instantly adjusted to any required focus. It will be seen that as the instrument is practically one piece the remaining hand of a user is left free for any service demanded of it, instead of using one hand for magnifier and the other for operating the tweezers. The diameter of the lens is ⅝ inch inside the rim, the extreme length over all when closed for convenient carriage in the small leather knife case furnished being 3⅜ inches. The metallic portion is nickeled brass and the lens can be turned in its

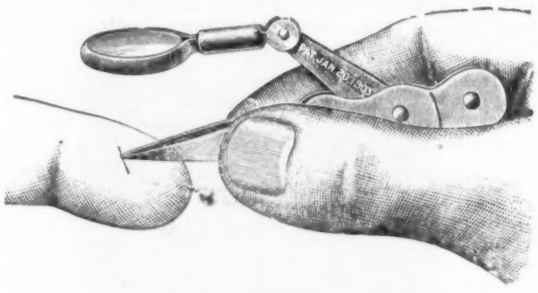


Fig. 2.—Instrument in Operation.

socket in any direction. It is designed to retail at a good profit at 25 cents each, including case.

Bommer Checking Spring Hinge.

Bommer Bros., 257-271 Classon avenue, Brooklyn, N. Y., manufacturers of a comprehensive line of single and double acting spring hinges, have just added the Bommer checking hinge, single acting, for lavatory doors, here shown. This set is designed to hold the door to water

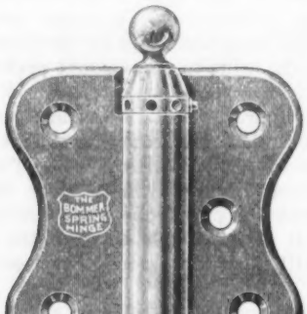


Fig. 1.—Upper Single Acting Lavatory Spring Hinge.

closet partly open, say 10 or 12 inches, while the closet is unoccupied, the occupant drawing it to and securing the door on inner side when entering. Fig. 1 illustrates the upper hinge of ordinary pattern. Figs. 2 and 3 indicate front and rear views of the same hinge which is applied at the bottom. The pin seen in Fig. 3 works against a spring of proper tension. If desired a hinge similar to Fig. 1, but with one broad flange at right about twice

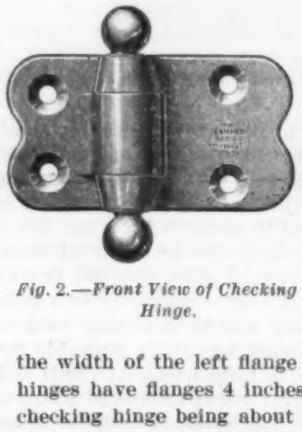


Fig. 2.—Front View of Checking Hinge.

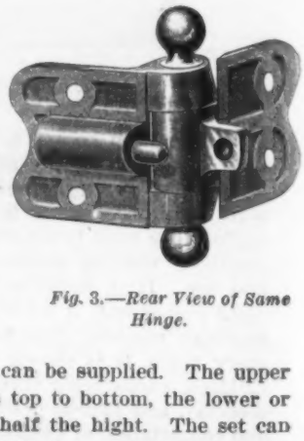


Fig. 3.—Rear View of Same Hinge.

the width of the left flange can be supplied. The upper hinges have flanges 4 inches top to bottom, the lower or checking hinge being about half the hight. The set can be used on wood, slate, marble, &c. These hinges are made regularly in polished or nickeled brass and polished bronze.

Current Hardware Prices.

REVISED JULY 14, 1903

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued June, 1903, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Abrasives—

damite in Cartoons:
Crystal ₩ ton $90@100
Grain ₩ ton $120@140
See also *Emery*.

Adjusters, Blind—

Domestic, ₩ doz. $3.00 33⅓%
North's 10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—

Ives' Patent 25&5%
Tapliu's Perfection 25&5%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—

Armand Hammer, Wrought ₩ lb 8½@8¾c
Buel Patent Trenton ₩ lb 9@9½c
Eagle Anvils ₩ lb 7¾@7¾c
Hay-Budden, Wrought 9@9¼c
Horseshoe brand, Wrought 9@9¼c

Imported—

Peter Wright & Sons ₩ lb 10½c

Anvil, Vise and Drill—

Millers Falls Co., $18.00 15&10%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—

Hull Bros. Co.:
Lots of 1 doz. 25%
Smaller Lots 20%
Lots of 3 doz. 30%

Augers and Bits—

Com. Double Spur 70&10@75%
Boring Machine Augers 66⅔@70%
Car Bits, 12-in. twist 60@60&10%
Jennings' Pattern 50&10&5@60%
Ford's Auger and Car Bits 40%
Forstner Pat. Auger Bits 25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list 25&10%
No. 30. R. Jennings' List. 40&7½&10%
Russell Jennings' 25&10&2½%
L'Hommedieu Car Bits 15&10%
Mayhew's Countersink Bits 45%
Millers' Falls 50&10&7½%
Pugh's Black 20%
Pugh's Jennings' Pattern 35%
Snell's Auger Bits 60%
Snell's Bell Hangers' Bits 50&10%
Snell's Car Bits, 12-in. twist 60%
Wright's Jennings Bits (R. Jennings' list) 50%

Bit Stock Drills—See *Drills, Twist.*

Expansive Bits—

Clark's small, $15; large, $20 50&10%
Lavigne's Clark's Pattern, No. 1, ₩ doz., $26; No. 2, $18 50&10%
C. E. Jennings & Co., Steer's Pat. 25&10%
Swan's 60%

Gimlet Bits—

Common Double Cut..gro. $2.50@3.00
German Pattern..gro. $4.00@4.25

Hollow Augers—

Bonney Pattern, per doz. $11.00@11.50
Ames 25&10%
New Patent 25&10%
Universal 20%
Wood's Universal 25%

Ship Augers and Bits—

Ford's 40%
Snell's 40%
C. E. Jennings & Co.:
L'Hommedieu's 15&10%
Watrous' 33⅓&10%

Awl Hafts, See *Hafts, Awl.*

Awls—

Brad Awls:
Handled gro. $2.75@3.00
Unhandled, Shouldered. gro. 63@66c
Unhandled, Patent gro. 66@70c
Peg Awls:
Unhandled, Patent gro. 51@54c
Unhandled, Shouldered. gro. 65@70c
Scratch Awls:
Handled, Common..gro. $3.50@4.00
Handled, Socket..gro. $11.50@12.00
Hurwood 40%

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

First Quality, factory brands... $5.50
First Quality, jobbers' brands... $5.00@5.25
Second Quality... $4.50@4.75

Axle Grease—See *Grease, Axle*

Axles—Iron or Steel

Concord, Loose Collar 4½@5c
Concord, Solid Collar 4½@4¾c
No. 1 Common 3¾@4c
No. 1 Com. New Style 3¾@4c
No. 2. Solid Collar 4¼@4½c
Nos. 11 to 14 60&10&10&10%
Nos. 15 to 18 70%
Nos. 19 to 22 70&10&5%
2% cash 10 days.

Boxes, Axle—

Common and Concord, not turned.. lb. 4¼@4½c
Common and Concord, turned lb. 5@5¼c
Half Patent lb. 9@9½c

Balances—Sash—

Caldwell new list 50%
Pullman's 60%

Spring—

Spring Balances 60@60&5%
Chatillon's:
Light Spg. Balances 40&10%
Straight Balances 40%
Circular Balances 50%
Large Dial 30%
Pelouze 50%

Barb Wire—See *Wire, Barb.*

Bars—Crow—

Steel Crowbars, 10 to 40 lb., per lb.. 3@3½c

Towel—

No. 10 Ideal, Nickel Plate ₩ gro, $8.50
No. 20 Ideal, Brass Finish ₩ gro $8.50

Baskets—

Hoffman's Brick Baskets each $3.25

Beams, Scale—

Scale Beams, List Jan. 12, '82 40&10%
Chattillon's No. 1 30%
Chattillon's No. 2 40%

Beaters—Egg—

Lightning Chain, ₩ doz, $1.15; ₩ gro $12.00

National Mfg. Co.: ₩ gro.
No. 1 Dover, Family size $7.00
No. 2 Dover, Hotel size 14.00

Taplin Mfg. Co.: ₩ gro.
No. 60 Improved Dover $6.50
No. 75 Improved Dover $7.50
No. 75-2 Imp'd Dover, Tin'd $9.00
No. 100 Improved Dover $8.00
No. 102 Improved Dover, Tin'd $9.50
No. 150 Improved Dover, Hotel $15.00
No. 152 Imp'd Dover, Hotel, T'd $ 7.00
No. 200 Imp'd Dover Tumbler $9.00
No. 202 Imp'd Dover Tumbler Tin'd $10.00
No. 300, Imp'd Dover Mammoth, ₩ doz $27.00
Wonder (S. S. & Co.) ₩ gro. $6.00

Bellows—

Blacksmith, Standard List. 70@70&10%

Blacksmiths'—

Inch..	30	32	34	36	38	40
Each	$3.50	3.75	4.25	4.80	5.35	6.15
Extra Length:						
Each	$4.00	4.55	5.10	5.60	6.40	7.50

Molders—

Inch	9	10	11	12	13
Doz	$7.50	9.00	10.00	12.00	13.00

Hand—

Inch	6	7	8	9	10
Doz	$4.75	5.70	6.60	7.60	8.50

Net Prices.

Bells—Cow—

Ordinary goods 75&5@75&10%
High grade 70&10@70&10&5%
Jersey 75&10%
Texas Star 50%

Door—

Abbe's Gong 45%
Barton Gong 55%
Home, R. & E. Mfg. Co.'s 55&10%
Lever and Pull, Sargent's 60&10&10%
Yankee Gong 30%

Hand—

Hand Bells, Polished 60&5@60&10%
White Metal 65@55&10%
Nickel Plated 50&50&5%
Swiss 60@60&7½%
Cone's Globe Hand Bells 33⅓&33⅓&10%
Silver Chime 33⅓&33⅓&10%

Miscellaneous—

Farm Bells lb. 2@3¼c
Steel Alloy Church and School 60%
American Tube & Stamp'g Co. Gongs 70%
Trip Gong Bells 55&10&60%

Belting—Rubber—

Agricultural (Low Grade)..75@75&5%
Common Standard 70@70&10%
Standard 65@70%
Extra 60&5@60&10%
High Grade 50&5@50&10%
Boston Belting Co.:
Seamless Stitched Imperial 45&5%
Boston 50&5%
Niagara 60&5%

Leather—

Extra Heavy, Short Lap 60@60&5%
Regular Short Lap 60&10@60&10&10%
Standard 70@70&5%
Light Standard 70&10%
Cut Leather Lacing 60&10%
Leather Lacing Sides, per sq. ft..18c

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—

Detroit Perfected Tire Bender 40%
Green River Tire Benders and Upsetters 20%
Detroit Stoddard's Lightning Tire Upsetters, No. 1, $4.25; No. 2, $7.25; No. 3, $10.50; No. 4, $16.25; No. 5, $20.50.

Bicycle Goods—

John S. Leng's Son's 1902 list:
Chain 50%
Parts 50%
Spokes 50%
Tubes 60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks—Tackle—

Common Wooden 70&10@75&5%
Hollow Steel Blocks, with Ford's Patent Sheaves 50&10%
Lane's Patent Automatic Lock and Junior 30%
Stowell's Novelty, Mal. Iron 50&10%
See also *Machines, Hoisting.*

Boards Stove—

Zinc, Crystal, &c. 30&10@40&10%

Bolts—

Carriage, Machine &c.—

Common, list Feb. 1, '02 60&10@65&5%
Phila. Eagle, $5.00 list May 24, '99 80@80&5%
Bolt Ends, list Feb. 14, '95 65&5@65&10%
Machine, list Oct. 1, '99 65@65&5%
Machine with C & T. Nuts 60&2½@..%

NOTE.—*Jobbers are in many cases underselling the manufacturers.*

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch	3	4	5	6	8
Per doz	$0.26	.30	.39	.47	.85

Cast Iron Spring Foot:

Inch	6	8	10
Per doz	$1.00	1.25	1.75

Cast Iron Chain, Flat, Japanned:

Inch	6	8	10
Per doz	$0.75	1.05	1.30

Cast Iron Shutter, Brass Knobs:

Inch	6	8	10
Per doz	$0.57	.80	1.00

Wrt Barrel, Jap'd. 75&10@75&10&10%
Wrought " Bronzed. 50&5@50&10%
Wrought Flush. B. K. 50&10@60&10%
Wrought Shutter... 50&10&10@60&5%
Wrought Square Neck 50@50&10%
Wrought Sunk, Flush 50@50&10%
Ives' Patent Door 60%

Stove and Plow—

Plow 60@60&5%
Stove 50@30&10%

Tire—

Common 72½@72½&10%
Norway Iron 80@80&5%
American Screw Company:
Norway Phila., list Oct. 16, '84 80%
Eagle Phila., list Oct. 16, '84 82½%
Bay State, list Dec. 28, '99 72½%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84 80%
Eagle Phila., list Oct. 16, '84 82½%
Eclipse, list Dec. 28, '99 72½%
Russell, Burdsall & Ward Bolt & Nut Co.
Empire, list Dec. 28, '99 72½%
Norway Phila., list Oct. '84 80%
Union Nut Co.:
Tire Bolts 72½%

Borers, Tap—

Borers Tap, Ring, with Handle:

Inch	1¼	1⅜	1½	2
Per doz	$4.30	5.00	5.75	7.25
Inch	2¼		2½	
Per Doz	$8.65		11.50	

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each 25%

Boxes, Mitre—

C. E. Jennings & Co. 25&10%
Langdon 15&10%
Schatz 40%

Braces—

NOTE.—*Most Braces are sold at net prices.*
Common Ball, American... $1.15@1.25
Barber's 50&10&10@60&10%
Fray's Genuine Spofford's 60%
Fray's No. 70 to 120, 81 to 123, 207 to 414 60%
C. E. Jennings & Co. 50&5&10%
Mayhew's Ratchet 60%
Mayhew's Quick Action Hay Patent 50%
Millers Falls Drill Braces 25&10%
P., S. & W. Co. Peck's Patent 60&10@65%

Brackets—

Wrought Steel 80@80&5%
Bradley's Wire Shelf:
Full cases 80&10&10%
Broken cases 80&10%
Griffin's Pressed Steel 80%
Griffin's Folding Brackets 70&10%

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—

Wire Goods Co. 75@75&10%

Buckets, Well and Fire—See *Pails*

Bucks Saw—

Hoosier ₩ gro. $36.00

Bull Rings—See *Rings, Bull.*

Butts—Brass—

Wrought list Sept., '96 30@30&10%
Cast Brass, Tiebout's 50%

Cast Iron—

Fast Joint, Broad 50@50&10%
Fast Joint, Narrow 50@50&10%
Loose Joint 70&5@70&10%
Loose Pin 70&5@70&10%
Mayer's Hinges 70&5@70&10%
Parliament Butts 70&5@70&10%

Wrought Steel—

Table and Back Flaps 75%
Narrow and Broad 75%
Inside Blind 75&10%
Loose Pin 75&10%
Loose Pin, Ball and Steeple Tip 60&5%
Japanned, Ball Tip Butts 70&10%
Bronzed Wrt. Nar. and Inside Blind Butts 55&10%
Extra 10@10&10%

Cages, Bird—

Hendryx, Brass:
3000, 5000, 1100 series 5%
1200 series 33⅓%
200, 300, 600 and 900 series 40&10%
Hendryx Bronze:
700, 800 series 40&10%
Hendryx Enameled 40&10%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong ..per lb. 4@4¼c
Sharp, 1 prong ..per lb. 4¼@4½c
Perkins' Blunt Toe ₩ lb 3½¢
Perkins' Sharp Toe ₩ lb 4 ¢

Cannons—

Breech Loading, 32 cal. Cartridge, Toy Cannons ..per doz $2.00

Can Openers—See *Openers, Can*

Cans, Milk—

	5	8	10 gal.	
Illinois Pattern.	$1 50	2.00	2.25	each.
Iowa Pattern...	....	2.35	2.50	each.
	20	30	40	qts.
New York Patt'rn	1.65	2.40	2.75	each.
Baltimore Patt'rn	....	1.80	2.00	each.

Cans, Oil—

Buffalo Family Oil Cans:

3	5	10 gal.
$48.00	60.00	120.00 gro

Caps—Percussion—

Eley's E. B......60c
G. D......per M 35@35c
F. L......per M 40@45c
G. E......per M 50@51c
Musket.....per M 62@63c

Primers—

Berdan Primers, $1.00 per M.....5%
B. L Caps (Sturtevant Shells) $1.00 per M.....5%
All other primers per M. $1.22@$1.27

Cartridges—

Blank Cartridges:
32 C. F., $5.50.....10c&5%
38 C. F., $7.00.....10c&5%
22 cal. Rim, $1.50.....10c&5%
32 cal. Rim, $2.75.....10&5%
B. B. Caps, Con. Ball Swgd.....*$1.90*
B. B. Caps, Round Ball.....*$1.40*
Central Fire.....25%
Target and Sporting Rifle.....15c&5%
Primed Shells and Bullets.....15c&10%
Rim Fire Sporting.....50%
Rim Fire, Military.....15c&5%

Cases, Show—

Sun, No. 102, Silent Salesman, 6 ft., $25.00

Casters—

Bed.....70@70c&10%
Plate.....60@60&5%
Philadelphia.....75@75c&10%
Boss.....70&10%
Boss Anti-Friction.....70&10%
Martin's Patent (Phoenix).....45%
Standard Ball Bearing.....45%
Tucker's Patent low list.....30%

Cattle Leaders—

See *Leaders, Cattle.*

Chain, Coil—

American Coil, Jobbers' Shipments:

3-16	¼	5-16	⅜	7-16	½	9-16	
3.50	6.00	4.90	4.00	3.80	3.70	3.65	
⅝	¾	⅞	1 to 1¼ inch.				
3.60	3.55	3.50	3.40	per 100 lb.			

German Coil.....60&10c&10%

Halters and Ties—

Halter Chains.....60c&10@60c&10c&10%
German Halter Chains, list July 24, '97.....60c&10c&10@70c&10%
Cow Ties.....60@60c&10%

Trace, Wagon, &c.—

Traces, Western Standard: 100 pair
6½—6-3, Straight, with ring...$26.00
6½—6-2, Straight, with ring..$26.50
6½—8-2, Straight, with ring..$30.00
6½—10-2, Straight, with ring..$35.00
Add 2¢ per pair for Hooks. Twist Traces 2¢ per pair higher than Straight Link.
Trace, Wagon and Fancy Chains..60@60c&10%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron.....60c&10@60c&10c&10%
Brass.....60c&10@60c&10c&10%
Safety Chain.....70c&10@75c&5%
Gal. Pump Chain.....lb. 4½@4¾c
Covert Mfg. Co.
Breast.....40&2%
Halter.....40&2%
Heel.....40&2%
Rein.....40&2%
Stallion.....40&2%
Covert Sad. Works:
Breast.....70%
Halter.....70%
Hold Back.....70%
Rein.....70%
Oneida Community:
Am. C ll and Halters.....40@45&5%
Am. Cow Ties.....45@50%
Eureka Coil and Halter.....45@50&5%
Niagara Coil and Halters....45@50&5%
Niagara Cow Ties.....45&5@50&10&5%
Wire Dog Chains.....45@50&5%
Wire Goods Co.:
Dog Chain.....70&10%
Universal Dbl-Jointed Chain.....50%

Chalk—(From Jobbers.)

Carpenters' Blue.....gro. 40c
Carpenters', Red.....gro. 35c
Carpenters', White.....gro. 30c
See also Crayons.

Checks, Door—

Bardsley's.....40&10%
Columbia.....50&10%
Eclipse.....60%

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools.....55%
Youths' Chests, with Tools.....40%
Gentlemens' Chests, with Tools.....30%
Farmers', Carpenters', etc., Chests, with Tools.....30%
Machinists' and Pipe Fitters' Chests, Empty.....50%
C. E. Jennings & Co.'s Machinists' Tool Chests.....33⅓&10%

Chisels—

Socket Framing and Firmer

Standard List.....70@70c&10%
Buck Bros.....30%
Charles Buck.....30%
C. E. Jennings & Co. Socket Firmer No. 10.....60&10%
C. E. Jennings & Co. Socket Framing No. 13.....60&10%
Swan's.....70%
L. & I. J. White.....30@30&5%

Tanged—

Tanged Firmers.....40c&5@40c&10%
Buck Bros.....30%
Charles Buck.....30%
C. E. Jennings & Co. Nos. 191, 181.....16⅔&10%
L. & I. J. White, Tanged.....25&5%

Cold—

Cold Chisels, good quality.lb. 13@15c
Cold Chisels, fair quality..lb. 11@12c
Cold Chisels, ordinary.....lb. 9 @10c

Chucks—

Beach Pat., each $8.00.....35&5%
Pratt's Positive Drive.....2½%
Empire.....2½%
Blacksmiths'.....2½%
Skinner Patent Chucks:
Combination Lathe Chucks.....40%
Drill Chucks, Patent and Standard..30%
Drill Chucks, New Model.....25%
Independent Lathe Chucks.....40%
Improved Planer Chucks.....25%
Universal Lathe Chucks.....40%
Face Plate Jaws.....40%
Standard Tool Co.:
Improved Drill Chuck.....45%
Union Mfg. Co.:
Combination.....40%
Char Drill.....30%
Geared Scroll.....30%
Independent.....30%
Union Drill.....30%
Universal.....40%
Face Plate Jaws.....35%
Wescott Patent Chucks:
Lathe Chucks.....50%
Little Giant Auxiliary Drill.....40%
Little Giant Double Grip Drill.....40%
Little Giant Drill, Improved.....40%
One da Drill.....40%
Scroll Combination Lathe.....40%

Clamps—

Adjustable, Hammers'.....20@20&5%
Cabinet, Sargent's.....50&10%
Carriage Makers', P., S. & W. Co.....50%
Carriage Makers' Sargent's.....60%
Besly, Parallel.....33⅓&10%
Lineman's, Utica Drop Forge & Tool Co.40%
Saw Clamps, see *Vises, Saw Filers'.*

Cleaners, Drain—

Iwan's Champion, Adjustable.....55%
Iwan's Champion, Stationary.....40%

Sidewalk—

Star Socket, All Steel.....₱ doz. $4.05 net
Star Shank, All Steel.....₱ doz. $3.24 net
W. & C. Snaap, All steel, 7¼ in. ₱ doz., $3.05; 8 in., $3.10; 8½ in., $3.25.

Cleavers, Butchers'—

Foster Bros.....30%
New Haven Edge Tool Co.'s.....45%
Fayette R. Plumb.....33⅓&33⅓&10%
P., S & W.....50@50&5%
L. & I. J. White.....30%

Clippers—

Chicago Flexible Shaft Company:
'98 Chicago Horse.....$8.75
1902 Chicago Horse.....$10.75
Lightning Belt.....$15.00
Chicago Belt.....$20.00
Stewart's Patent Sheep.....$18.50
} 15%

Clips Axle—

Eagle and Superior ¼ and 5-16 inch.....70c&10%
Norway, ¼ and 5-16 inch..70@70c&10%

Cloth and Netting, Wire

—See Wire, &c.

Cocks, Brass—

Hardware list:
Compression and Plain Bibbs.....65c&10@70%
Globe, Kerosene, Racking, &c., Cocks.....65c&5@70c&5%

Coffee Mills—See *Mills, Coffee.*

Collars Dog—

Brass, Walter B. Stevens & Son's list.40%
Embossed, Gilt, Walter B. Stevens & Son's list.....30&10%
Leather, Walter B. Stevens & Son's list40%

Combs Mane and Tail—

Covert's Saddlery Works.....60&10%

Compasses Dividers, &c.

Ordinary Goods.....75@75c&5%
Bemis & Call Hdw. & Tool Co.:
Dividers.....65%
Calipers, Call's Patent Inside.....55%
Calipers, Double.....65%
Calipers, Inside or Outside.....65%
Calipers, Wing.....60%
Compasses.....50%
J. Stevens A. & T. Co.....25&10%

Compressors Corn Shock—

J. B. Hughes' ₱ doz.....$2.50

Conductor Pipe, Galva.—

L. C. L. to Dealers:

Territory.	*Nested.*	*Not nested.*
Eastern....	7c&12½%	7c&12½%
Central....	7c&7½%	7c%
Southern...	6c&10%	6c&5%
S. Western..	6c&7½%	6c&2½%

Terms, 2% for cash. With delivery on full crates.
See also *Eave Troughs.*

Coolers, Water—

Gal, each.	2	3	4	6	8	
Labrador	$1.20	$1.50	$1.80	$2.10	2.70	
Gal.	3	4	6	8		
Iceland, ea.	$1.80	$2.10	$2.40	$3.00		
Gal....	2	3	4	6	8	
Galv. Lined Ea.	$1.35	$2.00	$2.25	$2.90	$3.90	25%

Ga.v. Lined side handles

Gal.	2	3	4	6	8	
Each.	$1.95	$2.15	$2.40	$3.3)	$4.15	25%

Coopers' Tools—

See *Tools, Coopers'.*

Cord—Sash—

Braided, Drab.....*lb. 25c*
Braided, White, Com.....*lb. 18@30c*
Cable Laid Italian..lb. A, 15c; B, 16c
Common India.....*lb. 1 @1¼c*
Cotton Sash Cord, Twisted....15@18c
Patent Russia.....*lb. 1 1⅛@13c*
Cable Laid Russia.....*lb. 13½@14c*
India Hemp, Braided.....*lb 15@16c*
India Hemp, Twisted.....*lb. 11@13c*
Patent India, Twisted.....*lb.11@13c*
Anniston Cordage Co.:
Old Glory, Nos. 7 to 12.....₱ lb 24 ¢
Anniston, Nos. 7 to 12.....₱ lb 19 ¢
Old Colony, Nos. 7 to 12.....₱ lb 18½¢
Anniston Drab, Nos. to 12.....₱ lb 24 ¢
Pearl Braided, cotton.....₱ lb 18 ¢
Massachusetts, White.....₱ lb 22½¢
Massachusetts, Drab.....₱ lb 26½¢
Eddystone Braided Cotton.....₱ lb 19¢
Harmony Cable Laid Italian.....₱ lb 18¢
Osawan Mills:
Crown, Solid Braided White...₱ lb 22¢
Braided, Giant, White.....₱ lb 20¢
Peerless:
Cable Laid Italian.....16¢
Cable Laid Russian.....14¢
Cable Laid India.....12¢
Braided India.....18¢
Phœnix, White.....19¢
Samson, Nos. 7 to 12:
Braided, Drab Cotton.....₱ lb 32½¢
Braided, Italian Hemp.....₱ lb 32½¢
Braided, Linen.....₱ lb 49¢
Braided, White Cotton, Spot.₱ lb 28½¢
No. 6 cords, 1¢ extra.
Silver Lake:
A quality, Drab, 40¢.....15%
A quality, White, 35¢.....15%
B quality, Drab, 35¢.....15%
B quality, White, 30¢.....15%
Italian Hemp, 40¢.....15%
Linen, 57½¢.....15%

Wire, Picture—

List Oct., '00.....85c&10@85c&10c&5%

Crackers, Nut—

Little Giant.....₱ gr. $34.00

Cradles—

Grain.....50%

Crayons—

White Round Crayons, gross.5@5½c
Cases, 100 gro., $4.00, at factory.
D. M. Steward Mfg. Co.
Metal Workers' Crayons.gr. $2.50
Soapstone Pencils, round, flat or square.....gr. $1.50
Rolling Mill Crayons.....gr. $2.50
Railroad Crayons (composition) gr. $2.00
} Case lots 20%
See also *Chalk.*

Crooks, Shepherds'—

Fort Madison, Heavy.....₱ doz. $7.00
Fort Madison, Light.....₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden.....50%

Cutlery, Table—

International Silver Company:
No. 12 Medium Knives, 1847..₱ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor.....₱ doz. $3.00
Wm. Rogers & Son.....₱ doz. $2 50
Simeon L. & Geo. H. Rogers Company:
12 dwt. Medium Knives.....₱ doz. $3.00
No. 77 Medium Knives.....₱ doz. $2.50

Cutters—Glass—

H. H. Mayhew Co.....40%
Red Devil.....50%
Smith & Hemenway Co.....50%
Woodward.....40%

Meat and Food—

Hale's...Nos.. *111* *112* *113*
Per doz.. *$8.10* *9.90* *13.50*
American.....30%

Nos.	2	3	4	5
Each	$5	$7	$10	$25	$50	$60

Enterprise.....25@25&7½%

Nos	5	10	12	22	32
Each	$2	$3	$2.75	$4.50	$6

Dixon's, ₱ doz.....30&10@40%

Nos..	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Home No. 1, ₱ doz. $12.75.....50&10%
Little Giant, ₱ doz.....33⅓&5@40%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

N. E Food Choppers.....40%
Sterling.....40@40&1 %

No 1	2	3
$2.00 each	No. 2	$3.50 each

New Triumph No. 605, ₱ doz. $24.00..
30&10@40%
Woodruff's, ₱ doz.....30&10@40%

Nos	100	150
	$15.00	$18.00

Enterprise Beef Shavers.....25@30%

Slaw and Kraut—

Henry Disston & Sons:
Slaw, Corn Grater, &c.....40%
Kraut Cutters 24 x 7, 26 x 8, 30 x 9.55%
Kraut Cutters 36 x 12, 40 x 12.....40%
Sterling, $6.00 each.....33⅓%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters.....40%
Slaw Cutters, 1 Knife, ₱ gr....$18@$20
Slaw Cutters, 3 Knife, ₱ gr....$22@$36

Tobacco—

All Iron, Cheap.....*doz. $4.25@$4.50*
Enterprise.....25&5%
National, ₱ doz. No. 1, $21; No. 2, $18..40%
Sargent's, ₱ doz. No. 2.....60%
Sargent's No 12 and 21.....60&10%

Washer—

Appleton's, ₱ doz. $16.00.....50&10%
Bonney's.....40%

Diggers, Post Hole, &c.—

Dalbey Post Hole Auger...per doz., $9.00
Iwan's Improved Post Hole Auger.40&5%
Iwan's Vaughan Pattern Post Hole Augers, ₱ doz.....$6.75
Iwan's Perfection Post Hole Digger... ₱ doz. $8.50
Iwan's Split Handle Post Hole Diggers, ₱ doz.....$7.50
Kohler's Universal.....₱ doz. $15.00
Kohler's Little Giant.....₱ doz. $12.50
Kohler's Hercules.....₱ doz. $10.00
Kohler's Invincible.....₱ doz. $9 00
Kohler's Rival.....₱ doz. $8.50
Kohler's Pioneer.....₱ doz. $7.50
Never-Break Post Hole Diggers, ₱ doz. $24.00.....60%
Samson, ₱ doz. $34.00.....25%

Dividers—See *Compasses.*

Doors, Screen—

Phillips', style E, 7x4 in.....₱ doz. $10.50
Phillips', style 077, 7x4 in.....₱ doz. $8.00
Phillips', style x-v, 7x4 in.....₱ doz. $11.00
Porter's Plain, No. 6.....₱ doz. $6 75
Porter's Ornamental, No. 70. ₱ doz. $10.50
Porter's No. 99.....$9.00
Porter's No. 44.....$10.75

Drawers, Money—

Sun Money Drawers, No. 5, ₱ doz. $9..
No. 6, with Bell, $10.00; No. 6, with Gong $10.50
Tucker's Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $15; No. 3, $12; No. 4, $1

Drawing Knives—

See *Knives, Drawing.*

Drills and Drill Stocks—

Common Blacksmiths' Drill..each $1.50@$1.7
Blacksmiths' Self-feeding..$3.75@4.
Breast, Millers Falls.....15c
Breast, P., S. & W.....40&5%
Goodell Automatic Drills..40&5@40&10%
Johnson's Automatic Drills Nos. 2 and 3.....16⅔&10%
Johnson's Drill Points.....16⅔&5&10%
Millers Falls Automatic Drills...33⅓&10%
Ratchet, Curtis & Curtis.....25%
Ratchet, Parker's.....40%
Ratchet, Weston's.....33⅓%
Ratchet, Whitney's, P. S. & W.....50%
Whitney's Hand Drill, No. 1, $10.00.....
Adjustable, No. 10, $12.00.....33⅓%

Twist Drills—

Bit Stock.....60c&10@60c&10c&10%
Taper and Straight Shank.....60c&10@60c&10c&10%

Drivers Screw—

Screw Driver Bits..per doz. ..45@75c
Balsey's Screw Holder and Driver, ₱ doz. 2-inch, $6; 4-in., $7.50 6-in., $9..40%
Buck Bros.....30%
Buck Bros' Screw Driver Bits.....30%
Champion.....50%
Edson.....60%
Fray's Hol. H'dle Sets, No. 3, $12.00 50%
Gay's Double Action Ratchet.....35%
Goodell's Auto50&10&10@50&10&10&5%
Hurwood.....40%
Mayhew's Black Handle.....50%
Mayhew's Monarch.....40&10%
Millers Falls, N 8, 2) and 21.....35&10%
Millers Falls, Nos. 11, 12, 41, 42.....15&10%
Never Turn.....60%
New England Specialty Co.....50%
Sargent & Co.'s:
Nos. 1, 50, 55 and 60.....60%
Nos. 20 and 40.....70%
Smith & Hemenway Co.....40&5%
Stanley's R. & L. Co.'s:
No. 64, Varnished Handles30@60&10&10%
No. 86.....70@70&10&10%
Swan's:
Nos. 65 to 68.....50%
No. 40.....40&10%
Nos. 25, 35 and 45.....20&10&10%

Eave Trough, Galvanized

Territory.	*L. C. L.*	
Eastern.....	7c&16⅔%	
Central.....	7c&12½%	
Southern.....	7c&2½%	
S. Western..	7%	

Terms, 2% for cash.
See also *Conductor Pipe and Elbows.*

Elbows and Shoes—

Factory shipments.....60%
Perfect Elbows (S. S. & Co.).....30%

Emery, Turkish—

	4 to 46	*54 to 150*	*Flour*
Kegs.....	*lb. 5c*	*5½c*	*3¾c*
½ Kegs.....	*lb. 5¼c*	*5¾c*	*3¼c*
Kegs.....	*lb 5c*	*6c*	
10-lb cans. 10 in case.		*6½c*	*7c*	*6c*
10-lb. cans, less than		*10.10c*	*10c*	*8c*

NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extractors, Lemon Juice

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's.....50&10%
Walling's.....50%

Cord and Weight—

Ives.....80%

Faucets—

Cork Lined.....50@50c&10%
Metallic Key, Leather Lind.70@70c&10%
Red Cedar.....40@40c&10%
Petroleum.....70c&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star.....60%
West Lock.....50&10%
John Sommer's Peerless Tin Key.....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Metal Key.50&10%
John Sommer's Duplex Metal Key.....40%
John Sommer's Diamond Lock.....40%
John Sommer's I. X. L. Cork Lined..50%
John Sommer's Reliable Cork Lined 50&10%
John Sommer's Chicago Cork Lined..60%
John Sommer's O. K. Cork Lined.....50%
John Sommer's No Brand, Cedar.....50%
John Sommer's Perfection Cedar.....40%
McKenna, Brass:
Burglar Proof, N. P.....35%
Improved, ¼ and ⅜ inch.....35%
Self Measuring:
Enterprise, ₱ doz. $36.00.....40&10%
Lane's, ₱ doz. $36.00.....40&10%
National Measuring, ₱ doz. $36..40&10%

Felloe Plates—

See *Plates, Felloe.*

Files—Domestic—

List revised Nov. 1, 1899.

Best Brands.....	70c&5@70c&10c&5%
Standard Brands....	7c&5@75c&10c&10%
Second Quality....	75c&10c&10@80c&5%

Imported—

Stubs' Tapers, Stubs' list, July 2, '97.....30%

Fixtures, Grindstone—

Net Prices:

Inch....	*15*	*17*	*19*	*21*	*24*
Per doz.	*$2.60*	*2.75*	*3.00*	*3 50*	*4.00*

P., S. & W. Co.....30&10c&10%
Reading Hardware Co.....60%
Sargent's.....60&10&10%
Stowell's Giant Grindstone Hanger, ₱ doz. $4.00
Stowell's Grindstone Fixtures, Extra Heavy.....50&10c&10%
Stowell's Grindstone Fixtures Light.....60&10%

Fodder Squeezers—

See *Compressors.*

Forks—*Aug. 1, 1899, list.*

Hay, 2 tine.....65%
Hay 3 tine.....60&7½%
Hay, 4 tine.....66⅔%
Hay, Header and Baler 3 tine 60&15%
Hay, Header and Baler, 4 tine 66⅔
Grain or Barley.....70%
Manure, 4 tine.....60&20%
Manure, 5 and 6 tine.....60&20%
Spading.....70&5%

Extra 10%

Iowa Digging Potato.....65%
Victor, Hay.....60&5%
Victor, Manure.....60&5%
Victor, Header.....60&5%
Champion, Hay.....60&5%
Champion, Manure.....60&10%
Columbia, Hay.....60⅔&5%
Columbia, Manure.....70%
Columbia, Spading.....70&10%
Hawkeye Wood Barley 4 tine ₱ doz. $5.00; 6 tine, $6.00.
W. & C. Potato Digger.....65%
Acme Hay.....60&10&7½%
Acme Manure, 4 tine.....60&20&10%
Acme Manure, 6 tine.....66⅔&10&2½%
Dakota Header.....65&15&5%
Jackson Steel Barley.....65&15&5%
Kansas Header.....66⅔%
W. & C. Favorite Wood Barley 4 tine, ₱ doz., $5.00; 6 tine, $6.00
Plated.—See *Spoons*.

Fountains, Stock—

Double Dewey....₱ doz. $26.00.....50%

Frames— Saw—

Red, Polished and Varnished..doz. $1.15 & $1.35
White.....*doz. 70@75c*

Freezers Ice Cream—

Qts...	2	3	4	6	8	10
Best	$1.45	1.65	1.95	2.40	3.40	4.25
Good	$1 25	1.40	1.60	2.00	2.70	3.70
Fair	$1.00	1.10	1 30	1.75	2.30	2.90

Fruit and Jelly Presses—

See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*

Hemp Fuse.....$2.60
Cotton Fuse.....2.90
Single Taped Fuse.....3.25
Double Taped Fuse.....4.20
Triple Taped Fuse.....5.00

10&2½%

Gates, Molasses and Oil—

Stebbins' Pattern.. .....80@80&10%

Gauges—

Marking, Mortise, &c.....
50&10@50&10&10%
Chapin-Stephens Co.:
Marking, Mortise, etc.50&10@50&10&10%
Scholl's Patent.....50&10@50&10&10%
Door Hangers.....5.@50&10%
Fulton's Butt Gauge.....30&10%
Stanley R. & L. Co.'s Butt & Babbet Gauge.....90@20&10&10%
Wire, Brown & Sharpe's.....25%
Wire, Morse's.....25%
Wire P., S. & W. Co.....30&10%

Gimlets— Single Cut—

Nail, Metal, Assorted, gro. $1.40@1.60
Spike, Metal, Assorted gro. $2.80@3.25
Nail, Wood Handled, Assorted, gro. $1.75@2.00
Spike, Wood Handled, Assorted gro. $3 25@3.50

Glass, American Window

Jobbers' List, Dec. 16, 1902.
Single and Double:
From store, First Three Brackets..
90&5%
From store, all sizes above....90&15%

Glasses, Level—

Chapin-Stephens Co.....60@60&10&10&10%

Glue—Liquid, Fish—

Bottles or Cans, with Brush....25@50%
Cans (½ pts., pts., qts., ½ gal., gal.).....*25@48%*
International Glue Co. (Martin's).....40&10@50%

Grease, Axle—

Common Grade.....*gro. $5.00@6.00*
Dixon's Everlasting....10-lb pails, ea. 85¢
Dixon's Everlasting, in bxs..₱ doz. 1 lb $1.20; 2 lb $2.00

Griddles, Soapstone—

Pike Mfg. Co.....33⅓@33⅓&10%

Grindstones—

Bicycle Emery Grinder.....$6.50
Bicycle Grindstones, each.....$2.50@3.00
Pike Mfg. Co:
Improved Family Grindstones, per inch, per doz.....$2.00
Pike Mowe Knife and Tool Grinder, each.....$6.00
33⅓%
Velox Ball Bearing, mounted, Angle Iron Frames.....each, $3.25

Guards, Snow—

Cleveland Wire Spring Co.:
Galv. Steel ₱ 100.....$9.00
Copper ₱ 1000.....$18.00

Halters and Ties—

Covert Mfg. Co.:
Web.....45&2%
Jute Rope.....40&5&2%
Sisal Rope.....20&5%
Covert's Saddlery Works:
Web and Leather Halters.....70%
Jute and Manila Rope Halters.....70%
Sisal Rope Halters.....60&20%
Jute, Manila and Cotton Rope Ties..70%
Sisal Rope Ties.....60&10%

Hammers—Handled Hammers—

Heller's Machinists'..40&10@40&10&10%
Heller's Farriers.....40&10@40&10&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75.....40@40&10&10%
Peck, Stow & Wilcox.....50%
Fayette R. Plumb:
Plumb, A. E. Nail..33⅓&7½@33⅓&10&7½%
Engineers' and B. S. Hand 50&7½&5@50&10&7½&5%
Machinists' Hammers50&5@50&10&5%
Riveting and Tinners' 40&2½@40&10&2½%
Sargent's C. S. New List.....40%

Heavy Hammers and Sledges—

3 lb. and under...lb. 45c
3 to 5 lb.....lb. 30c } *75@75&10%*
Over 5 lb.....lb. 30c
Wilkinson's Smiths'.....9½@10c lb.

Handles—Agricultural Tool Handles—

Axe, Pick, &c.....*45@50&5%*
Hoe, Rake, &c.....*60@60&5%*
Fork, Shovel, Spade, &c.:
Long Handles.....*60%*
D Handles.....*50%*

Cross-Cut Saw Handles—

Atkins'.....40&5%
Champion.....45@45&5%
Disston's.....50%

Mechanics' Tool Handles—

Auger, assorted.....*gro. $2.30@$2.50*
Brad Awl.....*gro. $1.25@$1.50*
Chisel Handles:
Apple Tanged Firmer, gro. ass'd, $2.25@$2.35; large, $2.50@$2.60.
Hickory Tanged Firmer, gro. ass'd. $1.75@$2.20; large, $3 50@$3.70.
Apple Socket Firmer, gro. ass'd, $1.70@$1.85; large, $3 00@$2 25
Hickory Socket Firmer, gro ass'd. $1.60 @ $1.75; large, $1.75 @ $2.00
Hickory Socket Framing, gro. ass'd. $2.50@$2.75; large, $2.65@$2.85
File, assorted.....*gro. $1.60@$1.15*
Hammer, Hatchet, Axe, &c.....*50%*
Hand Saw, Varnished, doz. 70@75c
Not Varnished.....*55@60c*
Plane Handles:
Jack, doz. 25c; Jack Bolted..55@60c
Fore, doz. 35@38c; Fore, Bolted..
70@75c

Chapin-Stephens Co.:
Carving Tool.....40@40&10%
Chisel.....65@65&10%
File and Awl.....65@65&10%
Saw and Plane.....40@40&10%
Screw Driver.....40@40&10%
Millers Falls Adj. and Ratchet Auger Handles.....15&10%
Nicholson Simplicity File Handle, ₱ gro.....$0.85@$1.50

Hangers—

Barn Door, New Pattern, Round Groove, Regular:

Inch	3	4	5	6	8
Single Doz	$0.85	1.20	1.50	1.90	2.30

Barn Door, New England Pattern, Check Back, Regular:

Inch	3	4	5	6
Single Doz	$1.10	1.60	2.15	2.70

Allith Mfg. Co.
Reliable.....per doz. $15.00
Chicago Spring Butt Co.:
Friction.....25%
Oscillating.....25%
Big Twin.....25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator.....40%
Railroad.....55%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60%
Roller Bearing.....60&10%
Lane Bros. Co.:
Parlor, Ball Bearing.....$4.15
Parlor, Standard.....$3.35
Parlor, New Model.....$2.85
Parlor New Champion.....$2.25
Barn Door, Standard.50&10&10&5%
Covered.....50&10&10%
Special.....50&10&10&5%
Lawrence Bros.:
Advance.....60%
Cleveland.....60&10%
Crown.....60%
Giant.....50&10%
New York.....60%
Peerless.....60&10%
Sterling.....60%
Swing, No. 95.....50&10%
Union, No. 44, $5.00; No. 45 $7.00; No. 46, $9.00.
McKinney Mfg. Co.:
No. 1, Special, $15.....60&10%
No. 2, Standard, $18.....60&10%
Hinged Hangers, $16.....50%
Meyers' Stayon Hangers.50&10% (net)
C. S. Smith Mfg. Co.:
Lundy Parlor Door.....50&10%
Monarch Barn Door.....60&10%
Never Jump Hinge.....50&10%
Peerless.....60&10%
Perfection.....70&5%
Phœnix.....70&5%
Wagner's Adjustable.....70&10%
Warehouse Anti-Friction.....60%
Richards Mfg. Co.:
Pioneer Wood Track No. 3.....$2.25
Imp'd Wood Track No. 5.....$2.25
Imp'd Steel Track No. 7.....$2 70
Imp'd Steel Track No. 7.....$2.65
Ball B'r'g Steel Track No. 9.....$2.50
Ball B'r'g Steel Track No. 10.....$2.50
Roller B'r'g Steel Track No. 11...$2.45
Roller B'r'g Steel Track No. 12...$2.40
Ball B'r'g Steel Track No. 13..$2.75
Roller B'r'g Steel Track No. 14..$2.65
Ball B'r'g Trolley Track No. 15...40%
Ball B'r'g Trolley Track No. 19...40&5%
Ball Bearing Tandem Trolley Track No. 16.....40%
Silent Adjustable Track No. 18...40%
Auto Adjustable Track No. 22...40%
Trolley B. D. No. 17.....$1.60
Trolley F. D. No. 120.....$2.70
Trolley F. D. No. 121.....$2.85
Trolley F. D. No. 151.....$3.00
Roller Bearing D. D. No. 25.....70&5
Roller Bearing U. S. B. D.....70&5%
Anti Friction B. D.....60&10%
Ives' Wood Track No. 1.....$2.15
Ives' Imp'd Wood Track No. 2..$2.15
Stowell Mfg. and Foundry Co.:
Acme Parlor Ball Bearing.....40%
Atlas.....60%
Badger Barn Door.....50%
Baggage Car Door.....50%
Climax Anti-Friction.....50%
Elevator.....40%
Express.....50%
Interstate.....60%
Lundy Parlor Door.....50%
Magic.....50%
Matchless.....60%
Nansen.....60&10%
Railroad.....50%
Street Car Door.....50%
Steel, Nos. 300, 404, 500.....40&15%
Stowell Parlor Door.....50%
Wild West, Nos. 303, 404, 500.....50%
Zenith for Wood Track.....50%
A. L. Swett Iron Works:
Eagle.....60&10%
Hylo.....50&10%
Perfection.....60%
Pilot.....60%
Taylor & Boggis Fy Cos.50&15&10&5%
Wilcox Mfg. Co.:
Bike Roller Bearing.....60&10%
C. J. Roller Bearing.....60&10%
Cycle Ball Bearing.....50%
Dwarf Ball Bearing.....40%
Ives, Wood Track.....60&10%
L. T. Roller Bearing.....60&10&5%
New Era Roller Bearing.....50&10%
O. K. Roller Bearing.....60&10&5%
Prindle, Wood Track.....60%
Richards' Wood Track.....60%
Richards' Steel Track.....50&10%
Spencer Roller Bearing.....60&10%
Tandem Nos. 1 and 2.....60%
Underwriters' Roller Bearing....40%
Velvet.....50%
Wilcox Auditorium Ball Bearing.30%
Wilcox Barn Trolley No. 123.....40%
Wilcox Elv. Door, Nos 112 and 122.50%
Wilcox Elv. Door, No. 132.....40%
Wilcox Fire Trolley, Roller Bearing.....30%
Wilcox Le Roy Noiseless Ball Bearing.....40%
Wilcox New Century.....50&10&10%
Wilcox O. K. Steel Track.....50%
Wilcox O. K. Trolley.....50%
Wilcox Trolley Ball Bearing....40%
Wilcox Wideman Narrow Gauge, Ball Bearing.....40%
For Track, see *Rail.*

Extra 50&10% often given.

Extra 50&10% often given.

Hangers, Gate—

Myers' Patent Gate Hangers, ₱ doz., net, $4.50

Hasps—

McKinney's Perfect Hasp, ₱ doz.....50%

Hatchets—

Best Brands.....*50@50&10%*
Cheaper Brands.....*60@60&10%*
Note.—Net prices often made.

Hinges—

Blind and Shutter Hinges—

Surface Gravity Locking Blind: (Victor; National; 1888 O. P. Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	1	3	5
Doz. pair	$0.85	1.75	3.60

Mortise Shutter: (L. & P., O. S., Dixie, &c.)

No.	1	1½	2	2½
Doz. pair	$0.70	.65	.60	.55

Mortise Reversible Shutter, (Buffalo, &c.)

No.	1	1½	2
Doz. pair	$0.75	.70	.65

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Parker.....70&10&75%
Reading's Gravity.....70&10%
Sargent's, Nos. 1, 3, 5, 11 & 13.....70&10@70&20%
Stanley's Steel Gravity Blind Hinges, ₱ doz. sets, without screws, $0.80; with screws, $1.15.
Wrightsville H'dware Co.:
O. S., Lull & Porter.....7 &5%
Acme, Lull & Porter.....35%
Queen City Reversible.....75%
Stenger's Positive Locking, Nos. 1 & 3.....70&10%
Shepard's Noiseless, Nos. 60, 65, 55...70&10%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75%
1888, Old Pat'n, Nos. 1, 3 & 5.....75%
Tip Pat'n, Nos. 1, 3& 5.....75%
Buffalo Gravity Locking, Nos. 1, 3 & 5.....75%
Shepard's Double Locking, Nos. 20 & 25.....70%
Champion Gravity Locking, No. 75..75%
Steamboat Gravity Locking, No. 10..75%
Pioneer, Nos. 060, 45 & 5½.....75%
Empire, Nos. 101 & 103.....70%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60%

Gate Hinges—

Clark's or Shepard's—Doz. sets:

No.	1	2	3
Hinges with Latches	$2.00	2.70	5.00
Hinges only	$1.40	2.05	3.90
Latches only	.70	.70	.35

New England:
With Latch.....*doz*.....*@$2.50*
Without Latch.....*doz*.....*@$1.80*
Reversible Self-Closing:
With Latch.....*doz*.....*@$1.80*
Without Latch.....*doz*.....*@$1.45*
Western:
With Latch.....*doz. $1.80*
Without Latch.....*doz. $1.20*
Wrightsville H'dware Co.:
Shepard's or Clark's, doz. sets,

No.	1	2	3
Hinges with Latches	$2.00	2.70	5.00
Hinges only	1.40	2.05	3.90
Latches only	.70	.70	1.35

Spring Hinges—

Holdback, Cast Iron, gro. $9.50@10.50
Non-Holdback, Cast Iron gro $7.@7.50
J. Bardsley
Bardsley's Patent Checking.....15%
Bommer Bros.:
Bommer Ball Bring Floor Hinges40%
Bommer Spring Hinges.....40%
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges.....50%
Chicago (Ball Bearing) Floor Hinge.....45%
Garden City Engine House.....25%
Keene's Saloon Door.....25%
Columbian Hdw. Co.:
Acme, Wrt. Steel.....30%
Acme, Brass.....20&5%
American.....30%
Columbia, No. 14.....₱ gr. $9.00
Columbia, No. 18.....₱ gr. $25.00
Columbia, Adjustable, No. 7, ₱ gr. $12.00
Gem, new list.....30%
Clover Leaf.....₱ gr. $12.50
Oxford, new list.....30%
Hoffman Hinge & Foundry Co.:
No. 70 & 80 Holdback Detachable $9.50
Lawson Mfg. Co.:
Machine.....35%
Matchless Pivot.....45%
Shelby Spring Hinge Co:
Crown Jamb Hinge.....40%
Chief Ball Bearing Floor Hinge.45%
Royal Ball Bearing Floor Hinge..45%
The Stover Mfg. Co.:
Ideal, No. 16, Detachable, ₱ gr $12.50
Ideal, No. 4.....₱ gr. $9.00
New Idea No. 1.....₱ gr. $9.00
New Idea, Double Acting.....45%

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list Mar. 15, 1901:
Light Strap Hinges.....*80&5%*
Heavy Strap Hinges 80&20&10%
Light T Hinges.....*75&10&5%*
Heavy T Hinges.....*75&5%*
Extra Heavy T Hinges..80&2½%
Hinge Hasps.....*70%*
Cor. Heavy Strap....80&20&10%
Cor. Ex. Heavy T.....*80&20*

Extra 10@10&10%

Screw Hook and Strap. { *6 to 12 in*.....*lb. 3½c*; *14 to 20 in*.....*lb. 3½c*; *22 to 36 in*.....*lb. 3 c*
Screw Hook and Eye:
¾ to 1 inch.....*lb. 6 c*
⅝-inch.....*lb. 7 c*
½-inch.....*lb. 9 c*

Miscellaneous—

Hoffman's Steel Spring Butt Hinges.....40&10%
Hoffman's Offset Refrigerator Hinges..40&10%

Hitchers, Stall—

Covert Mfg. Co., Stall Hitchers.....35%

Hods, Coal—

	15	*16*	*17*	*18 inch.*
Galv. Open	$2.50	2.75	3.00	3.25 ₱ doz.
Jap. Open	$2.00	2.25	2.50	2.75 ₱ doz.
Galv. Funnel	$3.00	3.25	3.50	3.75 ₱ doz.
Jap. Funnel	$2.50	2.75	3.00	3.25 ₱ doz.

Masons, Etc.—

Cleveland Wire Spring Co.:
Steel Mortar.....each $1.45
Steel Brick.....each $1.10
Hoffman's:
Brick.....each $1.10
Masons'.....each $2.00
Plasterers'.....each $3.20

Hoes— Eye—

Scovil and Oval Pattern.....
60&10@60&10&10%
Grub, list Feb. 23, 1899.....
60&10@60&10&10%

Handled—

Aug. 1, 1899, List:
Garden.....*70&10%*
Meadow & Rhode Island 75&2½&5%
Southern Meadow...75&5&2½%
Mortar and Street.....*75&7½%*
Planters', Regular Pat'n. 70&30%
Cotton.....*75&7½%*
Toy, Ladies', Boys', Onion, Turnip, Berry or Tobacco, 70&10&5%

Extra 30%

Note.—Manufacturers and jobbers use a diversity of lists, and often sell at net prices.

Ft. Madison Cotton Hoe.....75&7½%
Ft. Madison Crescent Cultivator Hoe, per doz.....75&10%
Ft. Madison Mattock Hoes:
Regular Weight.....₱ doz. $5.00
Junior Size.....₱ doz. $4.00
Ft. Madison Sprouting Hoe, ₱ doz. $4.00
Ft. Madison Dixie Tobacco Hoe..75&20%
Kretsinger's Cut Easy.....70&10%
Warren Hoe.....60%
W. & C. Ivanhoe.....75&5%
B. B. Cultivator Hoe.....75&10&2%
Acme Weeding.....75&10&2%
W. & C. Lightning Shuffle Hoe, ₱ doz. $4.85

Hoisting Apparatus—

See *Machines, Hoisting.*

Holders— Bit—

Angular, ₱ doz. $24.00.....45&10%

Door—

Empire.....50%

File and Tool—

Nicholson File Holders and File Handles.....33⅓%

Hooks— Cast Iron—

Bird Cage, Reading.....60%
Bird Cage, Sargent's List.....60%
Ceiling, Sargent's List.....40&10%
Clothes Line, Hoffman's.....40&10%
Clothes Line, Reading List 65&10@65&10&10%
Clothes Line, Sargent's List. 50&20&10%
Coat and Hat, Sargent's List.....45&10%
Clothes Line, Stowell's.....70%
Coat and Hat, Stowell's.....70%
Coat and Hat, Reading.....70@75%
Coat and Hat, Wrightsville.....65%
Harness, Doorman.....per doz. 35@40¢
Harness, Reading List.....70&10@75%

Wire—

Belt.....*80%*
Wire C. & H. Hooks....60&10&10@70%
Atlas, Coat and Hat:
Single Cases.....50%
10 Case Lots.....50&10%
Czar Harness.....50&10&5%

Wire Coat and Hat:
Acme....60%
B. B....60%
V Brace, Chief and Czar....60%
Gem....60%
Bright Wire Goods—See *Wire.*

Wrought Iron—

Box, 6 in., per doz. $1.00; 8 in., $1.25; 10 in., $2.50.
Cotton....doz. $1.05@1.25
Wrought Staples, Hooks, &c.—
See *Wrought Goods.*

Miscellaneous—

Bush, Light, doz. $5.50; Medium, $6.00; Heavy, $6.50
Grass....Nos. 1 2 3 4
Best.... $1.50 1.75 2.00
Common.. $1.30 1.40 1.60
Potato and Manure....66⅔&20%
Whiffletree....lb. 5½c
Hooks and Eyes:
Brass....60c10c10@70%
Malleable Iron....70c5@70c10%
Covert Saddlery Works' Self Locking Gate and Door Hook....60%
Ft. Madison Cut-Easy Corn Hooks, ₱ doz. $5.25 net
Crown Picture....50&10%
Bench Hooks—See *Bench Stops.*
Corn Hooks—See *Knives, Corn.*

Horse Nails—See *Nails, Horse*

Horseshoes—

See *Shoes, Horse.*

Hose Rubber—

Garden Hose, ¾-inch:
Competition....ft. 4¼@ 4¾c
3-ply Standard....ft. 6 @ 6¼c
4-ply Standard....ft. 7½@ 8 c
3-ply extra....ft. 8½@ 9 c
4-ply extra....ft. 10½@11 c
Cotton Garden, ¾-in., coupled:
Low Grade....ft. 6 @7 c
Fair quality....ft. 8 @9 c

Irons—Sad—

From 4 to 10....lb 2¾@3c
B. B. Sad Irons....lb. 3@3¼c
Chinese Laundry....lb. 4¾@5c
Chinese Sad....lb. 3¾@4c
Mrs. Potts', per set:

Nos.	50	55	60	65
Jap'd Tops	74c	71c	81c	81c
Tin'd Tops	77c	74c	87c	84c

New England Pressing, lb..3½@3¾c

Pinking—

Pinking Irons....doz. 50@60c

Soldering—

Soldering Coppers 2¼ and 3.. 21@22
1¼ and 2....23@24c
Covert Mfg. Co....20&2%

Jacks, Wagon—

Covert Mfg. Co.:
Auto Screw....30&5%
Steel....45&2%
Covert's Saddlery Works':
Daisy....60&10%
Victor....60&10%
Lockport....50%
Lane's Steel....30&10%

Kettles—

Brass, Spun, Plain....20@25%
Enameled and Cast Iron—See *Ware, Hollow.*

Knives—

Butcher, Kitchen, &c.—

Foster Bros.' Butcher, &c....30%
Hartzell Cutlery Co....50%
Smith & Hemenway Co....40&10%
Hay and Straw—See *Hay Knives.*

Corn—

Withington Acme, ₱ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—

Standard List....70&5@70c10%
Bradley's....
C. E. Jennings & Co. Nos. 45, 46..60&10%
Jennings & Griffin, Nos. 51, 52..60&10&10%
Swan's....70&10&2½%
Watrous....16⅔&10%
L. & I. J. White....20&5@25%

Hay and Straw—

Lightning....₱ doz. $6.50@7.00
Iwan's Sickie Edge....₱ doz. $10.00
Iwan's Serrated....₱ doz. $10.00
Maine....₱ doz. $8.50

Mincing—

Buffalo....₱ gro. $13.00

Miscellaneous—

Farriers'....doz. $2.00@3.00
Wostenholm's....₱ doz. $3.00@3.25

Knobs—

Base, 2¼-inch, Birch, or Maple, Rubber tip, gro....$1.10@1.50
Carriage, Jap, all sizes..gro. 25@30c
Door, Mineral....doz. 65@70c
Door, Por. Jap'd....doz. 70@75c
Door, Por. Nickel....doz. $2.05@2.15
Bardsley's Wood Door, Shutter, &c..15%
Picture, Sargent's....60&10%

Lacing Leather—

See *Belting Leather—*

Ladders Step Etc.—

Lane's Store....25%
Myers Noiseless Store Ladders....50%

Ladies—Melting—

L. & G. Mfg. Co....25%
P. S. & W....50%
Reading....60%
Sargent's....40&10%

Lanterns—Tubular—

Regular Tubular No. 0. doz. $4.35@4.75
Lift Tubular..No. 0..doz. $4.75@5.25
Hinge Tubular. No. 0., doz. $4.75@5.25
Other Styles....40&10@40&10c&5%

Bull's Eye Police—

No. 1, 2¾ inch....$2.50@2.75
No. 2, 3 inch....$2.75@3.00

Latches—Gate—

Hoffman's Safety Gate....₱ doz. 60c

Thumb—

Roggin's Latches, w. lauren'. dz35@40c

Leaders, Cattle—

Small....doz. 55c; large, 60c
Covert Mfg. Co....15&2%

Lifters, Transom—

R. & E....33⅓%

Lines—

Wire Clothes, Nos...	*18*	*19*	*20*
100 feet	*$2.20*	*2.00*	*1.65*
75 feet	*$1.80*	*1.70*	*1.30*

Oswawan Mills.
Crown Solid Braided Chalk....33⅓%
Mason's, No. 0 to No. 5....33⅓%
Samson Cordage Works:
Solid Braided Chalk, No. 0 to 3....40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50
₱ gr....30%
Anniston Waterproof Clothes, 50 lt., ₱ gro., $24.00; Gilt Edge, $22.00; Air Line, $23.00; Acme, $17.00; Alabama, $16.00; Empire, $17.00; Advance, $14.00; Alliston, $13.00; Calhoun, $11.00; Oriole, $20.00; Albermarle, $25.50; Eclipse, $11.00; Chicago, $11.00; Standard, $10.00; Columbia, $9.00.

Locks—Cabinet—

Cabinet Locks....33⅓@33⅓&c7½%

Door Locks, Latches, &c.—

[Net prices are very often made on these goods.]
Reading Hardware Co....50%
R. & E. Mfg. Co....40%
Sargent & Co....40@40&10%

Elevator—

Stowell's....40%

Padlocks—

Wrought Iron....75c10c5@80c5%
R. & E. Mfg. Co. Wrt. Steel and Brass....75@75&10%

Sash, &c.—

Ives' Patent,:
Bronze and Brass....55&7½%
Crescent....50%
Iron....60&2½%
Wrought Bronze and Brass....50&5%
Wrought Steel....55%
Reading....60&10&10@70%

Machines—Boring—

Com., Upright, Without Augers..$2.00
Com., Angular, Without Augers..$2.25
Without Augers.

R. & E. Mfg. Co.:	Upright.	Angular.
Improved No. 3.	$4.25	No. 1 $5.00
Improved No. 4.	3.75	No. 2. 3.38
Improved No. 5.	2.75	
Jennings'..No. 4,	3.15	No. 1, 3.50
Millers' Falls....		5.75
Snell's, Rice's Pat.	2.50	2.75

Hoisting—

Moore's Anti-Friction Differential Pulley Block....30%
Moore's Hand Hoist, with Lock Brake..20%
Moore's Portable Pneumatic Hoist....25%

Ice Cutting—

Chandler's....15&10%

Washing—

Boss Washing Machine Co.:	Per doz.
Boss No. 1; Boss Rotary	$57.00
Boss No. 7; Dietz Rotary	$60.00
Champion Rotary; Banner No. 1..	$54.00
Standard Champion No. 1.	$48.00
Standard Perfection	$26.00
Cinti Square Western	$30.00
Uneeda American, Round..	$29.00

Mallets—

Hickory....45&5@50%
Lignumvitæ....45&5@50%
Tinners', Hickory and Applewood, doz....50@55c

Mats—Door—

Elastic Steel (W. G. Co.)....10%

Mattocks—

See *Picks and Mattocks.*

Menders Hose

Robinson's Hose Menders....₱ gro, $2.00

Milk Cans—See *Cans, Milk*

Mills—Coffee, etc.—

Enterprise Mfg. Co....25@30%
Hoffman's Side, Coffee and Spice....
₱ doz. $1.25
National, list Jan. 1, '04....30%
Parker's Columbia & Victoria..50&10@60%
Parker's Box and Side....50&10@60%
Sun, No. 108, 1 lb mill....₱ doz. $3.00
Swift, Lane Bros Co....30%

Mowers, Lawn—

Net prices are generally quoted.
Cheap....all sizes. $1.90@1.95
Good....all sizes, $2.25@2.50

	10	12	14	16-inch
High Grade	*4.25*	*4.50*	*4.75*	*5.00*

Continental....60&10%
Great American....7%
Great American Ball Bearing....60&10%
Quaker City....70%
Pennsylvania....60&10%
Pennsylvania Ball Bearing....60&5%
Pennsylvania Golf....50%
Pennsylvania Horse....40%
Pennsylvania Pony....45%
Philadelphia:
Styles M., S., C., K., T....70&10%
Style A, all Steel....65&10%
Style E, High Wheel....70&10&5%
Drexel and Gold Coin, low list...50&5%

Nails—

Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered. List July 20, 1899. .85c10c10@90%
Hungarian, Finishing, Upholsterers', &c. See Tacks.

Horse—

Nos.	6	7	8	9	10	
A. C.	25¢	23¢	22¢	21¢	21¢	40&5%
Ausable	28¢	26¢	25¢	24¢	23¢	50&10%
C. B. K.	25¢	25¢	22¢	21¢	21¢	40%
Champ'n	28¢	26¢	25¢	24¢	23¢	40&10&5%
Clinton	19¢	17¢	16¢	15¢	14¢	30&10&5%
Maud S.	25¢	23¢	22¢	21¢	21¢	50%
Putnam	23¢	21¢	20¢	19¢	18¢	33⅓%

Putnam
Cold Rol'd 19¢ 18¢ 17¢ 16¢ .. ....10&10%
American, Nos. 5 to 10 ₱ lb....9@9½¢
Neponset....Nos. 5 to 10¢ ₱ lb 12¢
Jobbers' special brands...per lb. 8@9c

Picture

	1½	2	2½	3	3½ in.
Brass Head.	*.45*	*.60*	*.70*	*.95*	*1.00 gro.*
Por. Head...	*..*	*1.10*	*1.10*	*1.10*	*.. gro.*

Crown Picture Nails....₱ gro. $1.50

Nippers, See *Pliers and Nippers.*

Nuts—

Cold Punched: Off list.
Mfrs. or U. S. Standard.
Square, plain....$4.50
Hexagon, plain....$4.60
Square, C. T. & R....$4.70
Hexagon, C. T. & R....$5.00
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square Blank....$4.80@5.00
Hexagon Blank....$5.00@5.20
Square Tapped....$4.60@4.80
Hexagon Tapped....$4.80@5.10

Oakum—

Best or Government....lb. 6¼c
Navy....lb. 4¾c
U. S. Navy....lb. 5¾c
Plumbers' Spun Oakum....2¾c
In carload lots ¼c lb. off f.o.b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—

Brass and Copper....65@65c10%
Tin or Steel....70c10@75%
Zinc....75@75c10%
Chase or Paragon:
Brass and Copper....60c10@65%
Tin or Steel....75@75c10%
Zinc....76@76c10%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4; No. 3, $4.40 ₱ doz. 20%
Malleable, Hammers' Old Pattern, same list....50&10%
American Tube & Stamping Co.:
Spring Bottom Cans....70@70&10%
Railroad Oilers etc....60@60&10%

Openers—Can—

French....doz. 35c
Iron Handle....doz. 25@27c
Sprague, Iron Hdle..per doz. 35@40c
Sardine Scissors...doz. $1.75@$3.00
Marvel....per doz. $1.25
National....50%
Stowell's....per doz. 35@45c
Tip Top....per doz. $0.75

Egg—

Nickel Plate....per doz., $2.25
Silver Plate....per doz., $3.50

Packing—

Asbestos Packing, Wick and Rope, 15@15½c lb.

Rubber—

Sheet, C. I....8@12c
Sheet, C. O. S....9@15c
Sheet, C. B. S....10@14c
Sheet, Pure Gum....50@70c
Sheet, Red....35@40c
Jenkins' Standard, ₱ lb 80¢....25@25&5%

Miscellaneous—

American Packing....7@10c lb.
Cotton Packing....13@14c lb.
Italian Packing....9@12½c lb.
Jute....3½@4c lb.
Russia Packing....7@11c lb.

Pails—Creamery

S. S. & Co., with gauges.. No 1 $6.25; No. 2, $5.50 ₱ doz.

Galvanized—

Price per doz.

	Quart.	*10*	*12*	*14*
Water, Regular	..	*1.50*	*1.75*	*2.00*
Water, Heavy	....	*2.75*	*3.00*	*3.25*
Fire, Rd. Bottom.		*2.30*	*2.60*	*2.80*
Well	....	*2.25*	*2.50*	*2.75*

Pans—Dripping—

Standard List....60c5@60&10%

Fry—

Common Lipped:

No.	*1*	*2*	*3*	*4*	*5*
Per doz.	*$0.95*	*1.05*	*1.15*	*1.30*	*1.65*

Roasting and Baking—

Regal, S. S. & Co., ₱ doz., Nos. 5, $4.50; 10 $5.25; 20 $5.75; 30, $6.25.
Simplex, ₱ doz.:

No.	40	50	60	140	150	160
	$2.75	3.25	3.75	3.00	3.25	4.00

Paper—Building Paper—

Asbestos:	*lb.*
Building Felt....	*2¾c*
Mill Board, sheet, 40 x 40 inches	*3¼c*
Mill Board, roll, thicker than 1-16 inch....	*3¼c*
Mill Board, roll, 1-16 in. thick and less....	*2½c*
	Per roll
Rosin Sized Sheathing:	*500 sq. ft.*
Light wt., 25 lbs. to roll..	*$0.45@0.50*
Medium wt., 30 lbs. to roll..	*$0.58@0.55*
Heavy wt., 40 lbs. to roll..	*$0.68@0.75*

Black Water Proof Sheathing, 500 Sq ft., 1 ply, 65c; 2 ply, 85c; 3 ply, $1.10; 4 ply, $1.25.
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ton....$45.00
Red Rope Roofing, 250 sq. feet per roll....$1.65
NOTE.—*These goods are often sold at delivered prices.*

Tarred Paper.

1 ply (roll 400 sq. ft.), ton..$32.50@35.00
2 ply, roll 108 sq. ft....60@65c
3 ply, roll 108 sq. ft....82@87c
Slater's Felt (roll 500 sq. ft.)....75c
NOTE.—*Above prices often include delivery.*
R. R. M. Stone Surfaced Roofing (roll 110 sq. ft.)....$2.75

Sand and Emery—

Flint....60@60&10%
Garnet....25@20@15%

Parers—Apple—

Advance....₱ doz. $4.50
Baldwin....₱ doz. $5.00
Bonanza Improved....each $6.50
Dandy....each $7.50
Eureka Improved....each $20.00
Family Bay State....₱ doz. $15.00
Improved Bay State....₱ doz. $36.00
New Lightning....₱ doz. $7.50
Reading 72....₱ doz. $4.00
Reading 78....₱ doz. $7.00
Turn Table '98....₱ doz. $6.75
White Mountain....₱ doz. $6.00

Potato—

Saratoga....₱ doz. $7.00
White Mountain....₱ doz. $6.00

Paris Green—See *Trade Report*

Picks and Mattocks—

List Feb. 25, 1899...60&10@60&10c&10%

Pinking Irons—

See *Irons, Pinking.*

Pins—Escutcheon—

Brass....60@60&10%
Iron, list Nov. 11, '85....60@60&10%

Pipe, Cast Iron Soil—

Standard, 2-6 in....50&10%
Extra Heavy, 2-6 in....65%
Fittings....70%

Pipe, Merchant,

Steel or Iron, Carload Lots,

	f.o.b, Pittsburgh.	*Galvanized.*
Merchant Pipe.	*Black.*	
⅛, ¼, ⅜ inch	*68%*	*58%*
½ inch	*70%*	*60%*
¾ to 6 inch	*75%*	*65%*
7 to 12 inch	*69%*	*59%*

Less than carloads, 12½% advance.

Pipe Sewer—

Jobbers' Prices—
Standard Pipe and Fittings, 2 to 24 in.
New England....70%
New York and New Jersey....73%
Maryland, Delaware, East Penn..75%
West Penn and West Va....76%
Virginia....75%
Ohio, Michigan and Ky....78%
Carload lots are generally delivered.

Pipe, Stove—

Edwards' Nested Stove Pipe:	C. L.	L. C. L.
5 in., per 100 joints	$7.50	$8 50
6 in., per 100 joints	8.10	9.00
7 in., per 100 joints	9.00	10.00

Planes and Plane Irons—

Wood Planes—

Bench, First quality....40c5@40c10%
Bench, Second qual....50c5@50c10%
Molding....33⅓c5@33⅓c10%
Bailey's (Stanley R. & L. Co) 5c&10@25&10&10%
Chapin-Stephens Co.:
Bench, First Quality....40@40&10%
Bench, Second Quality....50@50&10%
Molding....33⅓@33⅓&10%
Toy and German....40@40&10%
Gage Self Setting....35%
Union....60%

Iron Planes—

Bailey's (Stanley R. & L. Co) 25&10@25&10&10%
Chaplin's Iron Planes....50&10%
Miscellaneous Planes (Stanley R. & L. Co.)....20&10@20&10&10%
Sargent's....60%
Union....60%

Plane Irons—

Wood Bench Plane Irons....30c5@30c10%
Buck Bros....30%
Chapin-Stephens Co....30@30&10%
Stanley R. & L. Co...20&10@20&10&10%
L. & I. J. White....20&5@25%

Planters, Corn, Hand.

Kohler's Eclipse....₱ doz. $8.50

Plates—

Felloe....lb. 3¾@4c
Self-Sealing Pie Plates (S. S. & Co.), ₱ doz. $2.00....50%

Pliers and Nippers—

Button Pliers....75@75c10%
Gas Burner, per doz., 5 in., $1.15@ $1.20; 6 in., $1.35@$1.45

Gas Pipe..	*7*	*8*	*10*	*12-in.*
	$1.75	*$2.00*	*$2.75*	*$3.75*

Acme Nippers....50@50&5%
Bernard's:
Parallel, Pliers....35%
Paragon Pliers....50&5%
Lodi Pliers....50&5%
Elm City Fence Pliers....35%
Cronk & Carrier Mfg. Co.:
American Button....75&10%
Cronk's....60%
Improved Button....70&10%
Stub's Pattern....50%
Combination and others....33⅓%
Heller's Farriers' Nippers, Pincers, and Tools 40&10@40&10&10%
P., S. & W. Tinners' Cutting Nippers, 30@30&10%
Swedish Side, End and Diagonal Cutting Pliers....50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds....40%

Plumbs and Levels—

Chapin Stephens Co.:
Plumbs and Levels....30@30&10&10%
Chapin's Imp. Brass Cor....40@40&10&10%
Pocket Levels....30@30&10&10%
Level Glasses....60@60&10&10%
Disston's Plumbs and Levels....70%
Disston's Pocket Levels....70%
C. E. Jennings & Co.'s Iron....25&10%
C. E. Jennings & Co.'s Iron, Adjustable, 33⅓&10%
Stanley R. & L. Co...20&10@30&10&10%

Stanley's Duplex.....20@20&10&10%
Woods' Extension.....33⅓&

Poachers, Egg—

Buffalo Steam Egg Poachers, ₱ doz., No. 1, $4.00; No. 2, $ .00. No. 3, $3.00; No. 4, $12..0.....
Points, Glaziers'—
Bulk and 1 lb. papers..lb. 8½c@..
½-lb. papers.....lb. 9¼c@..
¼-lb. papers.....lb. 9½c@..

Pokes, Animal—

Ft. Madison Hawkeye.....₱ doz. $3.25
Ft. Madison Western.....₱ doz. $4.00

Police Goods—

Manufacturers' Lists.....25@25&5%
Tower's.....25%

Polish—Metal—

Prestoline Liquid, No. 1 (½ pt.), ₱ doz. $3.00; No. 2 (1 qt.), $9.72.....40%
Prestoline Paste.....40&10%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ₱ doz. 50¢; ₱ gr. $4.50; ¼ lb boxes, ₱ doz. $1.25; 1 lb boxes, ₱ doz. $2.25.
U. S. Liquid, 8 oz. cans, ₱ doz. $1.25; ₱ gr. $12.00.
Barkeepers' Friend Metal Polish, ₱ doz. $1.75; ₱ gr. $18.00.
Wynn's White Silk, ¼ pt. cans, ₱ doz.....$2.00

Stove—

Black Eagle Benzine Paste, 5 lb cans.. ₱ lb 10¢
Black Eagle, Liquid, ¼ pt. cans ₱ doz. 75¢
Black Jack Paste, ¾ lb cans, ₱ gro. $9.00
Ladd's Black Beauty, gr. $10.00.....50%
Joseph Dixon's, ₱ gr. $5.75.....10%
Dixon's Plumbago.....₱ lb 8¢
Fireside.....₱ gr. $2.50
Gem, ₱ gr. $4.50.....10%
Japanese.....₱ gr. $3.50
Jet Black.....₱ gr. $3.50
Peerless Iron Enamel, ½ pt. cans..... ₱ doz. $1.50
Wynn's:
Black Silk, 5 lb pail.....each 70¢
Black Silk, ½ lb box.....₱ doz. $1.00
Black Silk, 5 oz. box.....₱ doz. $0.75
Black Silk, ½ pt. liq.....₱ doz. $1.00

Poppers, Corn—

1 qt., Square.....gro. $9.00
1 qt., Round.....gro. $10.00
1½ qt., Square.....gro. 11.00
2 qt., Square.....gro. 13.00

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6½ ft., 48¢.
Steel Hitching Posts, each.....$1.30

Potato Parers—

See *Parers, Potato.*

Pots— Glue—

Enameled.....40%
Tinned.....35%

Powder—

In Canisters:
Duck, 1 lb. each.....45c
Fine Sporting, 1 lb. each.....75c
Rifle, ½-lb. each.....15c
Rifle, 1-lb. each.....25c
King's Semi-Smokeless:
Keg (25 lb bulk).....$6.50
Half Keg (12½ lb bulk).....$3.50
Quarter Keg (6¼ lb bulk).....1.90
Case 24 (1 lb cans bulk).....$8.50
Half case (1 lb cans bulk).....$4.50

King's Smokeless:	Shot Gun	Rifle
Keg (25 lb bulk).....	$12 00	$15.00
Half Keg (12½ lb bulk)	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)	14.00	17 00
Half case 12 (1 lb cans blk)	7.25	8 75

Robin Hood Shot Gun.....50&20%

Presses—Fruit and Jelly—

Enterprise Mfg. Co.....20@25%
Sensible.....35⅓%
2 qt., $2.00; 4 qt., $4.00; 10 qt., $6.00 each.

Seal Presses—

Morrill's No. 1, per doz. $20.00.....50%
Morrill's No. 2, per doz. $22 50.....50%

Pruning Hooks and Shears—See *Shears.*

Pullers Nail—

Cyclops.....50%
Miller's Falls, No. 3, per doz. $12.00.....33⅓&10%
Pearson No. 1, Cyclone Spike Puller, each $37.50.....50%
Pelican, ₱ doz., $9.00.....40&10%
Scranton, Case Lots:
No. 1 (large), ₱ doz. $6.50; No. 2 (large), $5.75; No 3 (small), $5.00; No. 2-B (large), $5.50; No. 3-B (small), $4.00; No. 2-D (large), $4 50; No 3-D (small) $4.00.
Smith & Hemenway Co.:
Ajax.....60%
Diamond B, No. 2, case lots, ₱ doz $6.00
Diamond B, No. 3, case lots, ₱ doz $5.50
Eureka.....50%
Giant, No. 1, ₱ doz. $18; No. 2, $16.50; No. 3, $15.....40%
Yankee.....66⅔%

Pulleys—Single Wheel—

Inch.....	*2*	*2¼*	*3*
Awning...doz	*$0.55*	*.85*	*1.15*

Hay Fork, Swivel or Solid Eye..... doz., 4 in., $1.15; 5 in., $1.40

Inch	*2*	*2¼*	*2½*
Hot House.doz	*$0.70*	*.90*	*1.25*
Inch	*1¼*	*1½*	*1¾*	*2*
Screw.....doz	*$0.16*	*.10*	*.23*	*.30*
Inch	*1¼*	*2*	*2¼*	*2½*
Side.....doz	*$0.30*	*.40*	*.55*	*.63*
Inch.....	*1½*	*1¾*	*2*	*2½*
Tackle ...doz	*$0.30*	*.42*	*.58*	*1.00*

Stowell's:
Ceiling or End, Anti-Friction.....60%
Dumb Waiter, Anti-Friction...60&10%
Hay Fork, Anti-Friction, 5-in. Wheel, ₱ doz. $12.00.....50%
Electric Light.....60%
Side, Anti-Friction.....0&10%

Sash Pulleys—

Common Frame; Square or Round End, per doz., 1¾ in., 13c; 2 in., 16c
Auger Mortise, no Face Plate, per doz. 1¾ in., 12c.; 2 in., 15c.
Auger Mortise, with Face Plate, per doz., 1¾ in., 13c.; 2 in., 15½c.
Acme.....1¾ in., 16c; 2 in., 19c
Common Sense, 1¾ in.... ₱ doz., 18¢; 2 in., 20¢.
Fox-All-Steel, Nos. 3 and 7, 2 in. ₱ doz 25¢
Grand Rapids All Steel Noiseless...50%
Ideal No. 13.....1¾ in., ₱ doz., 16¢
Niagara.....1¾ in., 16¢; 2 in., 19¢
No. 26, Troy....1¾ in., 14½¢; 2 in., 16½¢
Star.....1¾ in., 16¢; 2 in., 19¢
Tackle Blocks—See *Blocks.*

Pumps—

Cistern.....60@50&10%
Pitcher Spout.....75&10@80%
Wood.....50@50&10%
Pump Leathers, Lower and Plunger Valves—Per gro.:

Inch..	*2*	*2¼*	*2½*	*2¾*
	$2.20	*2.50*	*2.75*	*3.00*
Inch..	*3*	*3¼*	*3½*	*3¾*	*4*
	$3.30	*3.60*	*3.80*	*4.10*	*4.40*

Barnes Dbl. Acting (low list).....50%
Contractors' Rubber Diaphragm No. 2 R. & L., Block Co.....$16.00
Flint & Walling's Fast Mail (low list).55%
Flint & Walling's Pitcher Spout.....75%
Loud's Suction Pumps, U. S. Co.....20%
Myer's Pumps, low list.....50%
Myers' Power Pumps.....50%
Daisy Spray Pump.....₱ doz. $7.50
Myers' Spray Pumps.....50&10%

Punches—

Saddlers' or Drive, good..doz. 65@70c
Spring, single tube, good quality... $1.75@2.00
Revolving (4 tubes)...doz. $3.75@4.00
Bemis & Call Co.'s Cast Steel Drive....50%
Bemis & Call Co.'s Check.....55%
Bemis & Call Co.'s Spring.....50%
Morrill's No. 1 (A. B. C.), ₱ doz., $15.00.50%
No. 2, ₱ doz. $22.50.....50%
No. 2, Metal, ₱ doz., $45.00.....50%
Bench Punch, each, $10.00.....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches.....55&10%
Steel Screw, B & K. Mfg. Co.....40%
Tinners' Hollow, P., S. & W. Co.35@35&5%
Tinners' Solid, P., S. & W. Co., ₱ doz., $1.44.....60%

Rail— Barn Door, &c.—

Cast Iron, Barn Door: Flange Screw Holes for Rd. Groove Wheels:

	½	⅝	¾ In.
	$1.70	*$2.10*	*$3 00 100 feet.*

Angular for Sq. Groove Wheels:

Small	*Med.*	*Large.*	
$1.60	*1.95*	*2.70*	*100 feet.*

Sliding Door, Brnzed Wr't Iron, ft. 6½c
Sliding Door, Iron Painted....2½@3c
Sliding Door, Wrought Brass, 1¼ in.....lb.36c...30%
Allith Mfg. Co. Reliable Hanger Track ₱ foot.....10¢
Cronk's Double Braced Steel Rail, ₱ foot.....3½¢
Cronk's O. N. T. Rail.....3½¢
Lanes' O. N. T., ₱ 100 ft., 1 inch, $3.10; 1¼ inch, $3.90; 1½ inch, $4.85.
Lanes' Standard, ₱ 100 ft.....3.75
Lawrence Bros.' ₱ ft. 4½¢
Lawrence Bros. New York.....3½¢
McKinney's Hinged Hanger Rail ₱ foot, 11¢.....50%
McKinney's None Better.....₱ ft. 3½¢
McKinney's Standard.....₱ ft. 4 c
Myers' Stayon Track.....50&10%
Smith's Wrought Bracket, Plain.....3½¢
Smith's Special.....4½¢
Smith's Never Jump, per ft. 11¢.....50%
Smith's Plain Steel.....3½¢
Smith's Milled Steel.....4½¢
Stowell's Cast Rail.....1½¢
Stowell's Steel Rail, Plain.....25%
Stowell's Wrought Bracket, Plain....3½¢
Swett's Hylo, per ft. 11¢.....50&10%
Swett's P. L. B. Steel Rail, ₱ 100 ft. $3.00

Rakes—

Net Prices, Malleable Rakes:

	10	*12*	*14*	*16-tooth*
Shank.....	*$1.50*	*1.60*	*1.75*	*1.85*
Socket.....	*$1.65*	*1.80*	*1.95*	*2.10*

Steel, August 1, 1899, List...70&5&20%
Malleable.....70&10@75&5%
Lawn Rakes, Metal Head, per doz., 20 teeth.....$3.25@3.50
24 teeth.....$3.60@3.75
Fort Madison Red Head Lawn.....$3 25
Fort Madison Blue Head Lawn.....$3.00
Jackson Lawn, 29 and 30 teeth, ₱ doz $4.00
Kohler's:
Lawn Queen, 20-tooth, ₱ doz.....$3 45
Lawn Queen, 24-tooth, ₱ doz.....$3.60
Paragon, 20-tooth, ₱ doz.....$2.75
Paragon, 24-tooth, ₱ doz.....$3.00
Steel Garden, 14-tooth, ₱ doz.....$2.88
Malleable Garden, 14-tooth, ₱ doz..$2.00

Rasps, Horse—

Disston's.....75%
Heller Bros.....70&5&70&10&5%
McCaffrey's American Standard..... 60&10&5%
New Nicholson.....10&10%
See also *Files.*

Razors—

Borasic.....60 & 10%
Fox Razors, No. 42, ₱ doz. $20.00 } dis. 40%
Fox Razors, No. 44, ₱ doz, $20.00 }
Fox Razors, No. 82, Platina, ₱ doz. } dis. -5 10
Red Devil.....60%
Silberstein:
Carbo Magnetic.....$8.00
Griffon, No. 65.....$15.00
Griffon, No. 66.....$12.00
All other Razors.....40%
Safety Razors.....40%

Safety Razors—

New Gem, in Tin Boxes.....₱ doz. $12.00
New Gem, Extra Blades.....₱ doz. $8.35
Gem Outfits (Razor, Strop, etc.)..... ₱ doz., $ 5.60
Complete Razor, extra Blade in Leather Case.....₱ doz. $27.00

Reels— Fishing—

Bishop's Independent Fish Reel Spooler, ₱ doz.....$30.00
Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, 4008, Silver Rubber Populo, Nickeled Populo, Aluminum, German Silver, Bronze, 3-01 N, 1-6 N, 4 N to 8 PN.....33⅓&
6 RW, 102 P and RN, 202 P and PN.40%
G 9.....20%
24 N to 28 PN.....35&10&10%
124 N, 374 PN, 002904 PN, 1020 R and PRN, 202 PR and PRN.... 50&5%
2004 N.....40&10&5%
5009 P N and N.....50%
2004 P.....50&10&5%
2904 PN.....60%
0922 N.....40&10%
02084 N.....45&12½&5%
Single Action Trout.....40&10%
9-6 P N, 802 and 802 N.....50&10%
Competitor, 304 and 304 PN.....35%
0304 P and PN.....40&5%
Safety and Salmon.....30%

Registers—*List Sept. 3, 1901.*

Black Jap.....
White Jap.....
Bronzed..... } *70@75%*
Nickel Plated.....
Electro Plated.....

There is a good deal of irregularity in prices of Registers.

Registers, Cash—

Sun, No. 10, Metal Cabinet.....$30.00
Sun, No. 10, Wood Cabinet.....$25.00

Revolvers—

Single Action.....85@90c
Double Act'n, except 44 cal..$1.50@1.60
Double Action, 44 caliber..$1.75@1.95
Automatic.....$2.25@3.50
Hammerless.....$3.75@4.10

Riddles, Hardware Grade

16 in., per doz.....$2.25@2.50
17 in., per doz.....$2.50@2.75
18 in., per doz.....$2.75@3.00

Rings and Ringers— Bull Rings—

	2	*2½*	*3 Inch.*
Steel.....	*$0 70*	*0.75*	*0.80 doz.*
Copper.....	*1.00*	*1.10*	*1.35 doz.*

Hog Rings and Ringers—

Hill's Rings....gro. boxes, $4.25@4.50
Hill's Ringers, Gray Iron, doz. 55@60c
Hill's Ringers, Mal. Iron, doz. 75@80c
Blair's Rings.....per gro. $5.00@5.25
Blair's Ringers...per doz. $0.60@.65
Brown's Rings.....per gro. $5.50@5.75
Brown's Ringers..per doz. $0.75@1.00

Rivets and Burrs—

Copper.....50c&10@50c&10&5%
Iron or Steel:
Tinners'.....75@75&5&10%
Miscellaneous.....75@75&5&10%

Rollers—

Acme, Stowell's Anti-Friction.....50%
Barn Door, Sargent's list.....60%
Cronk's Stay.....66⅔&5%
Cronk's Brinkerhoff.....66⅔%
Lane's Stay.....33⅓&5%
Stowell's Barn Door Stay.....₱ doz. $1.25

Rope—

Manila, 7-16 in. and larger, tarred or untarred...lb. 11¾@12 c
Manila, ⅜-inch ... lb. 12¼@12½c
Manila, ¼ & 5-16 in....lb. 12¾@13 c
Manila, Hay, Hide and Bale Ropes, Medium and Coarse..... lb. 11¾@12½c
Sisal, 7-16 in. and larger lb. 9 @10 c
Sisal, ⅜-inch ... lb. 9½@10½c
Sisal, ¼ and 5-16 Inch..lb. 10 @11 c
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse..... lb. 9 @10 c
Sisal, Tarred, Medium Lath Yarn.... .....lb. 8½@ 9½c
Cotton Rope:
Best.....¼-in. and larger, lb. 15 c
Medium..¼-in. and larger, lb. 13 c
Com ....¼-in. and larger, lb. 9½c
Jute Rope:
Thread No. 1, ¼-in. and up, lb. 6½c
Thread No. 2, ¼-in. and up, lb. 6 c
Yarn, ¼-in. and up.. lb. 5 @5½c
Old Colony Manila Transmission Rope, ₱ lb 12½¢

Wire Rope—

Galvanized.....50&5%
Plain.....55&5%

Ropes, Hammocks—

Covert Mfg. Co.:
Jute.....40&5%
Sisal.....30%
Covert Saddlery Works.....60&5%

Rules—

Boxwood.....60&10@60&10&5%
Ivory.....35&10@35&10&5%
Chapin-Stephens Co.:
Boxwood.....60@60&10%
Ivory.....35@35&10&10%
Miscellaneous.....30@30&10&10%
Combination.....35@35&10%
Stationers'.....10@10&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....60&10%
Stanley R. & L. Co.:
Boxwood.....60@60&10%
Ivory.....35@35&10&.0%
Upson Nut Co.:
Boxwood.....60@60&10%
Ivory.....35&10@35&.0&10%

Sash Locks—See *Locks, Sash*

Sash Weights—

See *Weights, Sash.*

Sausage Stuffers or Fillers

—See *Stuffers or Fillers, Sausage*

Saw Frames—See *Frames, Saw*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—

Atkins:
Circular.....50@50&10%
Band.....50&10@60%
Cross Cuts.....35&5%
Mulay, Mill and Drag.....50&10%
One-Man Saw.....40%
Wood Saws.....40%
Hand, compass, &c.....40%
Chapin-Stephens Co.:
Turning Saws and Frames..30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws.....25%
Disston's:
Circular, Solid and Inserted Tooth..50%
Band, 3 to 14 in wide.....6%
Band, ¼ to 2¾.....70%
Crosscuts.....45%
Narrow Crosscuts.....50%
Mulay, Mill and Drag.....50%
Framed Woodsaws.....35%
Woodsaw Blades.....35%
Woodsaw Rods.....25%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 79, 77, 8.....
Hand Saws, Nos 7 107, 107½, 3, 1, 0, 00, Combination.....30%
Compass, Keyhole, &c.....25%
Butcher Saws and Blades.....35%
C. E. Jennings & Co.'s.:
Back Saws.....25&10%
Butcher Saws.....3 &10%
Compass and Key Hole Saws..35&5&10%
Framed Wood Saws.....30&10%
Hand Saws.....20&2½&10%
Wood Saw Blades.....30&10%
Millers Falls:
Butcher Saws.....15&10%
Star Saw Blades.....3&10%
Peace:
Circular and Mill.....50%
Cross Cuts, list Jan. 1, '99.....50%
Hand, Panel and Rip.....30%
Richard-on:
Circular and Mill.....50%
Hand, &c.....30%
X Cuts, list Jan. 1, '99.....50%
Simonds':
Circular Saws.....50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts.....40&10%
Gang Mill, Mulay and Drag Saws..50%
Band Saws.....50%
Back Saws.....25&25&7½%
Butcher Saws.....35&35&7½%
Hand Saws.....25&25&7½%
Hand Saws, Bay State Brand.....25%
Compass, Keyhole, &c.....25&25&7½%
Wood Saws.....35&35&7½%

Hack Saws—

Atkins' Hack Saw Blades A A A.... 30%
Disston:
Concave Blades.....25%
Keystone.....40%
Hack Saw Frames.....30%
Fitchburg File Works, The Best.....25%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180..... 35&5&10%
Hack Saws, Nos. 175, 180, complete. 35&5&10%
Griffin's Hack Saw Frames..35&5&10%
Griffin's Hack Saw Blades.....35&5&10%
Star Hack Saws and Blades.....15&10%
Sterling Hack Saw Blades.....25%
Sterling Hack Saw Frames.....20%

Scroll—

Barnes' No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20.....20%
Lester, complete, $10.00.....15&10%
Rogers, complete, $4.00.....15&10%

Scalers, Fish—

Bishop's Lightning.....₱ doz. $3 00
Covert's Saddlery Works.....60&10%

Scales—

Family, Turnbull's.....30@30&10%
Counter:
Hatch, Platform, ½ oz to 4 lbs. doz. $5.50
Two Platforms, ½ oz to 8 lbs. doz. $10
Union Platform, Plain...$1.70@1.90
Union Platform, Striped $1.85@2.15
Chatillon's:
Eureka.....25%
Favorite.....40%
Grocers' Trip Scales.....50%
Chicago Scale Co.:
The "Little Detective," 25 lbs.....50%
Union or Family No. 2.....60%
Portable Platform (reduced list).....50%
Wagon or Stock (reduced list)....25&35%
Pelouze Scales—Household, Counter, Candy, Ice, Postal, Computing.....50%
"The Standard" Portables.....45%
"The Standard" R. R. and Wagon.....50%

Scrapers—

Box, 1 Handle.....doz. $2.25@2.70
Box, 2 Handle.....doz. $3.00@3 50
Ship Light, $2.50; Heavy, $4.00
Adjustable Box Scraper (S. R. & L. Co.) $6.00.....30&30&10%
Chapin-Stephens Co., Box.....50&50&10%

Screens, Window, and Frames—

Flyer Pattern Window Screen...60@60&5%
Maine Window Screen Frames..40&10&5%
Perfection Window Screens.....60@60&5%
Phillips' Window Screen Frames....60&5%
Porter's:
Fairview Window Screens..... 60&5@60&5&2½%
Hummer Window Screens..... 60&5@60&5&2½%
Klondike Window Screens..... 60&5@60&5&2½%
See also *Doors.*

Screws—Bench and Hand—

Bench, Iron..doz. 1 in., $2.75@3.00:
1½, $3 25@3.50: 1¼, $3.85@4.25
Bench, Wood, Beech..doz. $3.00@3.50
Hand, Wood.....30@30&5%
R. Bliss Mfg. Co, Hand.....30%
Chapin-Stephens Co., Hand.....30@30&10%

Coach, Lag and Hand Rail—

Lag, Common Point, list Oct. 1, '99.....70&15@...%
Coach and Lag, Gimlet Point, list Oct. 1, '99.....70&10@...%
Hand Rail, list Jan. 1, '81.60&10@...%

Jack Screws—

Standard List.....75&10@30&5%
Millers Falls.....50&10&10%
Millers Falls, Roller.....50&10%
P, S. & W.....50@50&10%
Sargent.....70&10%

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron.50@50&10%
Flat or Round Head, Brass50@50&10%

Set and Cap—

Set (Iron or Steel).....70%
Sq. Hd. Cap.....65%
Hex. Hd. Cap.....65%
Rd. or Fillister Hd. Cap.....60%

Wood—

List Jan. 1, 1900.
Manufacturers' printed discounts:
Flat Head, Iron.....87½&10@...%
Round Head, Iron.....85&10@...%
Flat Head, Brass.....85&10@...%
Round Head, Brass...80&10@...%
Flat Head, Bronze...77½&10@...%
Round Head, Bronze.....75&10@...%
Drive Screws.....87½&10%

Scroll Saws—See *Saws, Scroll.*

Scythes—

Per doz.
Clipper Pattern, Grass...$4.50@5.00
Full Polished Clipper.....$5.00@5.50
Grain.....$7.00@7.50
Clipper, Grain.....$7.75@8.25
Weed and Bush.....$4.75@5.00

Seeders—Raisin—

Enterprise.....25@30%

Sets—Awl and Tool—

Brad Awl and Tool Sets:
Wood Hdle., 10 Awls doz. $2.00@2.25
Wood Hdle., 14 Awls, 6 Tools doz. $2.50@2.60
Aiken's Sets, Awl and Tools:
No. 20, ₱ doz. $10.00.....50&10&10%
Fray's Adj. Tool H'dls...Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7.....50%
C. E. Jennings & Co.'s Model Tool Holders.....30&10%
Millers Falls Adj. Tool H'dls, No. 1, $12; No. 4, $12; No. 5, $18.....15&10%
Stanley's Excelsior:
No. 1, $7.50; No. 2 $4.00; No. 3, $5.50.....30@30&10&10%

Garden Tool Sets—

Ft. Madison, Three Pieces, Hoe, Rake and Shovel.....₱ doz. sets.....$9.00

Nail—

Square.....per gro. $2.25@2.50
Round, Blk. and Pol., assorted.....gro. $1.80@2.50
Octagon.....gro. $4.00@4.25
Knurled, Good.....gro. $5.75@6.00
Buck Brothers.....27½%
Cannon's Diamond Point, ₱ gr. $12..25%
Mayhew's.....per gro. $9.00
Snell's Corrugated, Cup Pt. per gro $7.50
Snell's Knurled, Cup Pt....per gro $7.50

Rivet—

Regular list.....70&10@75%
Aiken's:

Saw—

Genuine.....50&10%
Imitation.....50&10%
Atkin's.:
Criterion.....40%
Adjustable.....40%
Bemis & Call Co's.:
Cross Cut.....30%
Hammer, new Pat.....45%
Plate.....20%
Spring Hammer.....30%
Disston's Star and Monarch.....25%
Morrill's No. 1, $15.00.....50%
Nos. 3 and 4, Cross Cut, $20.63.....50%
No. 5, Mill, $30.00.....50%
Nos. 10, 11, 9½, $15.63.....50%
No. 1 Old Style, $10.00.....50%
Giant Royal, Cross Cut.....₱ doz. $9.00
Royal, Hand.....₱ doz. $5.40
Taintor Positive, ₱ doz. $18.....60%

Sharpeners, Knife—

Chicago Wheel & Mfg. Co.....65%
Smith & Hemenway Co.....70%

Shaves Spoke—

Iron.....doz. $1.00@1.15
Wood.....doz. $1.65@2.25
Bailey's (Stanley R. & L. Co.).....50@50&10&10%
Chapin-Stephens Co.....50@50&10&10%
Goodell's, ₱ doz. $9.00.....15&10%
Wood's F1 and F2.....50%

Shears—

	7	8	9 in.
Cast Iron...			
Best	$16.00	18.00	20.00 gro.
Good	$13.00	15.00	17.00 gro.
Cheap	$5.00	6.00	7.00 gro.

Straight Trimmers, &c.:
Best quality, Jap.....70@70&10%
" Nickel.....60@60&10%
Fair qual. Jap.....80@80&5%
" Nickel.....75@75&10%
Tailors' Shears.....40@40&10%
Acme Cast Shears.....40@40&5%
Geneva.....60%
Heinisch's Tailors' Shears.....40%
Wilkinson's Hedge.....1900 list 25%
Wilkinson's Pruning.....40%
Wilkinson's Sheep.....1900 list. 25%

Tinners' Snips—

Steel Blades.....20&5@20&10
Steel Laid Blades.....40&10@50%
Forged Handles Steel Blades, Berlin.....40@40&10%
Jennings & Griffin Mfg. Co.'s, 6½ to 10 inch.....30&7½&10%
Niagara Snips.....40%
P., S & W. Co.....20%

Pruning Shears and Tools—

Cronk's Grape Shears.....33⅓%
Cronk's Pruning Shears.....33⅓%
Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00.....25%
Disston's Pruning Hook, ₱ doz. $12.00.....25%
John T. Henry Mfg. Co.:
Pruning Shears, all grades.....40@40&5%
Orange Shears.....50&10@50&20%
Grape.....40&10@50%
Tree Pruners.....75%
P., S. & W. Co.....33⅓%

Sheaves—Sliding Door—

Stowell's Anti-Friction.....50%
Patent Roller Hatfield's, Sargent's list.....70&10%
Reading.....70&10@75%
R. & E. list.....33⅓%
Sargent's list.....50&10%
Wrightsville Hatfield Pattern.....80%

Sliding Shutter—

Reading list.....70&10@75%
R. & E. list.....33⅓%
Sargent's list.....50&10%

Shells—Shells, Empty—

Brass Shells, Empty:
First quality, all gauges.....60&5%
Climax, Club, Rival, 10 and 12 gauge..65&5%
Paper Shells, Empty:
Acme, Ideal, Leader, New Rapid, Magic 10, 12, 16 and 20 gauge..25&5%
Blue Rival, New Climax, Challenge, Monarch, Defiance, New Victor, Repeat r, Yellow Rival, 10, 12, 16 and 20 gauge.....30%
Climax, Union, League, New Rival 10 and 12 gauge.....25%
Climax, Union, League, New Rival, 14, 16 and 20 gauge ($7.50 list)..30%
Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge.....33⅓&5%
Robin Hood, Low Brass.....20&10%
Robin Hood, High Brass.....50&10%

Shells, Loaded—

Loaded with Black Powder.....40%
Loaded with Smokeless Powder, medium grade.....40&5%
Loaded with Smokeless Powder, high grade.....40&10&10%
Robin Hood, Low Brass.....30%
Robin Hood, High Brass.....50&10&5%

Shoes Horse, Mule, &c.—

F. o. b., Pittsburg:
Iron.....per keg $3.85
Steel.....per keg 3.60
Burden's, all sizes, ₱ keg.....$3.90

Shot—

Drop, up to B, 25-lb. bag.....$1.40
Drop, B and larger, per 25-lb. bag $1.65
Buck, 25-lb. bag.....$1.65
Chilled, 25 lb. bag.....$1.65
Dust Shot, 25-lb. bag.....$2.00

Shovels and Spades—

Association List, Nov. 15, 1902....40%

Sieves and Sifters—

Hunter's Imitation, gro. $11.00@11.50
Buffalo Metallic Blued, S. S. & Co., ₱ gr.:

14&16	16&18	18&20
$12.90	$13.80	$15.00

National Mfg. Co.:
Victor.....per gro. $12.00
Surprise.....per gro. $11.00
No Name.....per gro. $11 00
Shaker (Barler's Pat.) Flour Sifters. ₱ doz., $2.00.....20%

Sieves, Tin Rim—

Per dozen

Mesh	14	16	18	20
Black, full size	$1.20	1.25	1.30	1.35
Plated, full size	$1.30	1.35	1.40	1.45
Black, scant	....	$0.85	1.00	1.05

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch.
Mesh 18, Nested, doz.....$0.65@0 75
Mesh 20, Nested, doz.....75@ .85
Mesh 24, Nested, doz.....90@1.00

Sinks—

Cast Iron—

Standard list.....60@60&10%
NOTE.—*There is not entire uniformity lists used by jobbers.*

Skeins Wagon—

Cast Iron.....70@70&10%
Malleable Iron.....40@40&10&50%
Steel.....40@40&10%

Slates, School—

Factory Shipments.
"D" Slates.....45%
Noiseless Slates.....60&4 tens &5%
Wire Bound.....40%

Slaw Cutters—See *Cutters.*

Slicers, Vegetable—

Sterling No, 10, $2.00.....33⅓

Snaps, Harness—

German.....40@40&10%
Covert Mfg. Co.:
Derby.....20&5&2%
High Grade.....45%
Jockey.....30&10%
Trojan.....45%
Yankee.....30&5&2%
Yankee, Roller.....30&5&2%
Covert's Saddlery Works:
Crown.....60%
German.....60%
Model.....60%
Triumph.....60%
Oneida Community:
Solid Steel.....60&5%
Solid Swivel.....60%
Sargent's Patent Guarded.....60%&10%

Snaths—

Scythe.....50@50&10%

Snips, Tinners'—See *Shears.*

Spoons and Forks—

Silver Plated—

Good Quality.....50&10@60&10&5%
Cheap.....50@60&10%
International Silver Co.
1847 Rogers Bros. and Rogers & Hamilton.....40&10%
Rogers & Bro., William Rogers Eagle Brand.....50&10%
Anchor, Rogers Brand.....60%
Wm. Rogers & Son.....60&10%
Simeon L. & Geo. H. Rogers Co.:
Silver Plated Flat Ware.....60%
No. 77 Silver Plated Ware.....60&10%

Miscellaneous—

German Silver.....60@60&10%
Cattaraugus Cutlery Co.:
Yukon Silver.....50%
Simeon L. & Geo. H. Rogers Co.:
German or Nickel Silver, Special list.....L. &10%

Tinned Iron—

Teas.....per gro. 45@50c
Tables.....per gro. 90c@$1.00

Springs—Door—

Gem (Coil).....20%
Star (Coil).....30%
Torrey's Rod, 39 in.....₱ doz. $1.10
Victor (Coil).....50&10&10%

Carriage, Wagon, &c.

1¼ in. and Wider:
Black or ¼ Bright, lb.....4¾@5 c
Bright, lb.....5¼@5½c
Painted Seat Springs:
1½ x 2x 26, per pr.....50@55c
1½ x 2 x 28 per pr.....60@65c
1½ x 3 x 28 and narrower, per pr. 80@85c

Sprinklers, Lawn—

Enterprise.....25@30%
Macksey.....₱ doz. $1.80
Philadelphia No. 1, ₱ doz. $12; No. 2, $15; No. 3, $24.....30%

Squares—

Nickel plated.....} List Jan. 5, 1900.
Steel and Iron.....} 70&10%
Rosewood tidl Try Squire and T-Bevels.....60&10&10@70%
Iron Hdl. Try Squares and T-Bevels. 50&10@50&10&20%
Disston's Try Sq. and T-Bevels.....70%
Winterbottom's Try and Miter.....40&10&10&10&10%

Squeezers—Lemon—

Wood, Common, gro., No. 0, $5.25 @$5.50: No. 1, $6.25@$6.50.
Wood, Porcelain Lined Cheap.....doz. $2.00@2.75
Good Grade.....doz. $3.00@3.50
Tinned Iron.....doz. $0.75@1.25
Iron, Porcelain Lined doz. $2.90@3.25

Staples—

Barbed Blind.....lb. 6@6½c
Electricians', Association list.....80&10&10&10%
Fence Staples, See Trade Report.
Galvanized, 1sc less than Barb Wire
Polished 20c less than Barb Wire.
Poultry Netting, Staples....per lb.. 3¼@3½c
Grand Crossing Tack Co.'s list.....80&10%

Steels, Butchers'—

Dick's.....30%
Foster Bros'.....30%
Hartzell Cutlery Co.....60&5%
C. & A. Hoffmann's.....40%

Steelyards.....25&10@30&10%

Stocks and Dies—

Blacksmiths'.....40&10@50%
Curtis Reversible Ratchet Die Stock.25%
Derby Screw Plates.....25%
Gardner Die Stocks No. 1.....50%
Gardner Die Stocks, larger sizes.....40%
Green River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Reece's New Screw Plates.....25@30%

Stone—

Scythe Stones—

Chicago Wheel & Mfg. Co:
Gem Corundum, 10 inch, $3.00 per gro., 12 inch, $10..)
Pike Mfg. Co. 1901 list:
Black Diamond S. S....₱ gro. $12.00
Lamoille S. S.....₱ gro. $11.00
White Mountain S. S....₱ gro. $9.00
Green Mountain S. S....₱ gro. $6.00
Extra Indian Pond S. S..₱ gro. $7.50
No. 1 Indian Pond S. S..₱ gro. $7.00
No. 2 Indian Pond S. S..₱ gro. $4.50
Leader Red End S. S....₱ gro $4.50
Balance of 1901 list 33⅓%

Oil Stones, &c.

Chicago Wheel & Mfg. Co., 1901 list:
Gem Corundum Oil, Double Grit.....50%
Gem Corundum Axe, Single or Double Grit.....55%
Gem Corundum Slips.....55%
Gem Corundum Razor Hones.....50%

Pike Mfg. Co. 1901 list:	₱ lb.
Arkansas Stone, No. 1, 3 to 5½ in.	$2.80
Arkansas Stone, No. 1, 5½ to 8 in.	$3.50
Arkansas Slips N. 1.....	$4.00
Lily White Washita 4 to 8 i.....	60¢
Rosy Red Washita, 4 to 8 in.....	60¢
Washita Stone, Extra, 4 to 8 in..	50¢
Washita Stone, No. 1, 4 to 8 in..	40¢
Washita Stone, No. 2, 4 to 8 in..	30¢
Lily White Slips.....	90¢
Rosy Red Slips.....	90¢
Washita Slips, Extra.....	80¢
Washita Slips, No. 1.....	70¢
India Oil Stones (entire list).....	3 0½%

Hindostan No. 1, Regular.....₱ lb. 8¢
Hindostan No. 1 Small.....₱ lb 10¢
Axe Stones (all kinds).....
Turkey Oil Stones, ex. 5 tos in. ₱ lb 30¢
Queer Creek Stones, 4 to 8 in.....30¢
Queer Creek Slips.....40¢
Sand Stone.....5¢
Belgian, German and Swaty Razor Hones.....50%
Natural Grit Carving Knife Hones, ₱ doz.....$3.00
Quick Edge Pocket Knife Hones, ₱ doz.....$2.00
Mounted Kitchen Sand Stone, ₱ doz.....$1.50

Stoners—Cherry—

Enterprise.....25@30%

Stops Bench—

Millers Falls.....15&10%
Morrill's...₱ doz., No. 1, $10.00.....50%
Morrill's, No. 2, $12.50.....50%

Door—

Chapin-Stephens Co.....60@60&10%

Plane—

Chapin-Stephens Co.....3%

Straps—Box—

Cary's Universal, case lots.....20&10%

Hame—

Covert's Saddlery Works.....60&10%

Stretchers, Carpet—

Cast Iron, Steel Points...doz. 55@60c
Socket.....doz. $1.75

Stuffers, Sausage—

Enterprise Mfg. Co.....25@25&7½%
National Specialty Mfg. Co., list Jan. 1, '97.....30%

Supports, Porch—

Hoffman's Porch Supports....₱ doz. 25¢

Sweepers, Carpet—

National Sweeper Co.: Per doz.
Marion, Roller Bearing, regular finishes, full Nickel.....$24.00
Marion Queen, Roller Bearing, Fancy Veneers, full Nickel.....$27.00
Monarch, Roller Bearing, Nickel..$22.00
Monarch, Roller Bearing, Jap'ned.$20.00
Marion Queen, Roller Bearing, Regular Finishes, full Nickel.....$24.00
Transparent, Roller Bearing, Plate Glass Top, Nickel.....$32.00
Monarch Extra, Roller Bearing, (17-inch case), Nickel.....$30.00
Monarch Extra, Roller Bearing (17-inch case), Japanned.....$28.50
Perpetual, Regular Bearings, Nkl.$20.00
Perpetual, Regular Bearings, Jap.$17.00
NOTE.—*Discount of 30c per dozen on three-dozen lots. Discount of $1 per dozen on five-dozen lots.*

Tacks, Brads, &c.—

List Jan. 15, '99.
Carpet Tacks, American 90¢25¢5@....%
American Cut Tacks..90¢20¢5@....%
Swedes Iron Tacks...90¢30¢5@....%
Swedes Upholsterers' Tacks 90¢45¢10¢5@....%
Gimp Tacks.....90¢45¢5@....%
Lace Tacks.....90¢40@....%
Trimmers' Tacks..90¢30¢10¢5@....%
Looking Glass Tacks...70¢10@....%
Bill Posters' and Railroad Tack... 90¢45¢5@....%
Hungarian Nails....80¢20¢5@....%
Common and Patent Brads....80¢10%
Trunk and Clout Nails..50¢5@....%
NOTE.—*The above prices are for Straight Weights.* An extra 5% is given Star Weights** and an extra 10&5% on Standard Weights.****

Miscellaneous—

Double Pointed Tacks...90 and 5 tens
Steel Wire Brads, R. & E. Mfg. Co's list.. 50&10&60%
See also *Nails, Wire.*

Tanks, Oil—

	Each.
Emerald, S. S. & Co.	30-gal $3.40
Emerald, S. S. & Co.	60-gal., $4.25
Queen City S. S. & Co.,	30-gal.....$3.65
Queen City S. S. & Co.,	60-gal.....$4.50

Tapes, Measuring—

American Asses' Skin.....40¢10@50%
Patent Leather.....25@30¢5%
Steel.....40@40¢5%
Chesterman's.....25@25¢5%
Keuffel & Esser Co., Steel and Metallic, Lower list, 1899.....35%
Lufkin's Steel.....33⅓&35%
Lufkin's Metallic.....30@30&5%

Teeth Harrow—

Steel Harrow Teeth, plain or headed, ⅝ inch and larger, per 100 lbs...$5.00

Thermometers—

Tin Case.....80¢10@30¢10¢5%

Ties, Bale—Steel Wire.

Single Loop.....80¢2¼
Monitor, Cross Head, Etc.....70%

Ties, Wall—

Cleveland Wire Spring Co.:
Galv. Steel 5-32 x 6½ in. ₱ 1000..$10.00
Galv. Steel 5-32 x 8½ in. ₱ 1000..$11.00
Galv. Steel 5-32 x 11½ in ₱ 1000..$12.00
Galv. Steel 5 32 x 15½ in. ₱ 1000..$14.00

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tips, Safety Pole—

Covert's Saddlery Works.....60&10%

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire*

Tools— Coopers'—
L. & I. J. White .....20@20&5%
Hay—
Myers' Hay Tools 50%
Saw—
Atkins' Cross Cut Saw Tools.....40%
Simonds' Improved.....33⅓%
Simonds' Crescent.....25%
Ship—
L. & I. J. White.....25%
Transom Lifters—
See *Lifters, Transom.*
Traps— Fly—
Balloon, Globe or Acme..... doz. $1.15@1.25 ; gro. $11.50@12.00
Harper, Champion or Paragon ... doz. $1.25@1.50 ; gro. $13.00@13 50
Game—
Oneida Pattern.....80@30&5%
Newhouse.....45@45&5%
Hawley & Norton.....65&5@65&10%
Victor (Oneida Pattern).....75@75&5%
Star (Blake Pattern).....60&5@60&10%
Mouse and Rat—
Mouse, Wood, Choker, doz. holes.... 8½@9c
Mouse, Round or Square Wire..... doz. 85@90c
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, Each $1.12½; ₱ doz. $12.00
No. 3, Rat, ₱ doz. $6.00; case of 50 $5.25 doz.
No. 3½, Rat, ₱ doz. $4.75; case of 72 $4.25 doz.
No. 4, Mouse, ₱ doz. $3.50; case of 7 $2.75 doz.
No. 5, Mouse, ₱ doz. $2.75; case of 150 $2.25
Schuyler's Rat Killer, No. 1, ₱ gr. $30.00
No. 2, ₱ gr. $30.00; Mouse, No. 3, $18.00 .....50%
J. M. Mast Mfg. Co.: Per gro.
Mouse. Rat.
Blizzard.....No. 12, $3.00 No. 1, $9 50
Old Nick.....No. 30, 2.22 No. 2, 8.40
Joker.....No. 5, 2.10 No. 3, 8.40
Imp'd Snap Shot, Mouse, per gro., 2 hole, $2 40.
Imp'd Snap Shot, Mouse, per gro., 4 hole, $4.20.
Trimmers Spoke—
Bonney's Nos. 1 and 2..... 40%
Wood's E 1.....50%
Trowels—
Disston Brick and Pointing..... .....30%
Disston Plastering.....25%
Disston "Standard Brand" an i Garden Trowels.....35%
Kohler's Steel Garden Trowels, 5 in..... ₱ gro. $5.00
Kohler's steel Garden Trowels, 6 in ... ₱ gro. $6.00
Never-Break Steel Garden Trowels..... gro. $6.00
Peace's Plastering 30%
Rose Brick and Plastering.....25&5%
Woodrough&McFarlin,Pl'st'ring.....25%
Trucks, Warehouse, &c.—
B. & L. Block Co.:
New York Pattern.....50&10%
Western Pattern.....60&10%
Handy Trucks.....per doz. $16.00
Grocery.....per doz. $15.00
Daisy Stove Trucks, Improved pattern ₱ doz. $18.50
Model Stove Trucks.....₱ doz. $18.50
Tubs, Wash—

	No. 1	2	3
Galvanized, per doz.	*$4.75*	*5.25*	*6.00*

Galvanized Wash Tubs (S. S. & Co.):

No.	1	2	3	10	20	30
Per doz.	$5.25	6.00	6.75	6.50	7.00	8.00

Twine—Miscellaneous—

Flax Twine—	BC	B.
No. 9, ¼ and ½-lb. Balls	*21½c*	*23½c*
No. 12, ¼ and ½ lb. balls	*17½c*	*19½c*
No. 18, ¼ and ½-lb. Balls	*15½c*	*17½c*
No. 24, ¼ and ½-lb. Balls	*15 c*	*17 c*
No. 36, ¼ and ½-lb. Balls	*14½c*	*16½c*

Chalk Line, Cotton, ½-lb Balls.... 2½@25c
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....9c
Cotton Wrapping 5 Balls to lb ... according to quality. ....12c@20c
American 2-Ply Hemp, ¼ and ½-lb. Balls..... .....13@14c
American 3 Ply Hemp, 1-lb. Balls.. 13@14c
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine).....8c
India 3-Ply Hemp, 1-lb. Balls.....8c
India 3-Ply Hemp, 1¼-lb. Balls...7c
2, 3, 4 and 5-Ply Jute, ½-lb. Balls... 8@9c
Mason Line, Linen, ½-lb. Balls...15c
No. 24, Mattress, ¼ and ½-lb. Balls.37c
Wool, 3 to 6 ply.....5@5½c
Binder—
See *Trade Report.*
Vises—
Solid Box..... 50&10@50&10&5
Parallel—
Athol Machine Co.:
Simpson's Adjustable.....40%
Standard.....40%
Amateur.....25%
Bonney's.....40%
Columbian Hdw. Co 40%
Emmert Universal:
Pattern Makers' No. 1..... ...$15.00 net
Pattern Makers' No 2.....$13.00 net
Machinist and Tool Makers' .$15.00 net
Fisher & Norris Double Screw....15&10%
Hollands':
Machinists'.....40%
Keystone.....65&5%
Lewis Tool Co.....20@30%
Merrill's.....30%
Miller's Falls.....50&10&10%
Parker's:
Victor.....20@25%
Regulars.....20@25%
Vulcan's.....40@45%
Combination Pipe.....55@60%
Prentiss.....20@25%
Sargent's.....40%
Smith & Hemenway Co.:
Machinists.....40%
Jewelers.....33⅓%
Snedliker's X, L.....33⅓%
Stephens'.....33⅓%
Saw Filers'—
Bonney's, No. 1, $13; No. 3, $16 . 50&5%
Disston's D 3 Clamp and Guide, ₱ doz $30 .....25%
Reading.....60%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3..... .....45&50%
Wood Workers'—
Wyman & Gordon's Quick Action, 6 in., $6.00 ; 9 in., $7.00 ; 14 in., $8.00.
Miscellaneous—
Bignall & Keeler Combination Pipe Vise.....60%
Parker's Combination Pipe:
87 Series.....60%
187 Series.....60&5%
No. 870.....40%
Wads—Price Per M.

B. E., 11 up	*60c*
B. E., 9 and 10	*70c*
B. E., 8	*80c*
B. E., 7	*80c*
P. E., 11 up	*$1.00*
P. E., 9 and 10	*1.25*
P. E., 8	*1.50*
P. E., 7	*1.50*
Ely's B. E., 11 and larger	*$1.70@1.75*
Ely's P. E., 12 to 20	*$3.00@ 3?*

Dis. 15%
Ware, Hollow—
Cast Iron, Hollow—
Stove Hollow Ware:
Ground.....50&10@60%
Unground.....60&5@65%
White Enameled Ware:
Maslin Kettles.....70%
Covered Ware:
Tinned and Turned.....40%
Enameled.....50%
See also *Pots Glue.*
Enameled—
Agate Nickel Steel Ware, list Nov. 1, '01.....50&10%
Iron Clad Ware.....70&10%
Lava, Enameled.....40&10%
Never Break Enameled.....50%
Tea Kettles—

Galvanized Tea Kettles:				
Inch.....	*6*	*7*	*8*	*9*
Each.....	*45c*	*50c*	*55c*	*65c*

Steel Hollow Ware.
Avery Spiders & Griddles .....65@65&5%
Avery Kettles.....60%
Porcelained.....50&5@50&10%
Never Break Spiders and Griddles..... 65&5%
Never Break Kettles.....60%
Solid Steel Spiders & Griddles. ....65&5%
Solid Steel Kettles.....60%
Warmers, Foot—
Pike Mfg. Co., Soapstone.....40@40&10%
Washboards—
Solid Zinc: ₱ doz
Crescent, family size, bent frame. $3.00
Red Star, family size, stationary protector..... .....$3.00
Double Zinc Surface:
Saginaw Globe, family size, stationary protector.....$2.65
Cable Cross, family size, stationary protector $2.90
Single Zinc Surface:
Nalad, familysize, open back perforated.....$2.40
Saginaw Globe, protector, family size, ventilated back $2.25
Brass Surface:
Brass King, Single Surface, open back $3.00
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.00
Washers—
Leather, Axle—
Solid.....80@10@80@10@10%
Patent.....90@90@5%

Coil:	⅞	1	1¼	1¾ *Inch,*
	11c	*12c*	*13c*	*14c per box*

Iron or Steel—

Size bolt	*5-16*	⅜	½	⅝	¾
Washers....	*$6.80*	*5.50*	*4.60*	*4.40*	*4.20*

In lots less than one keg add ½c per lb., 5-lb. boxes add ½c to list.
Cast Washers—
Over ½ inch, barrel lots. per lb..... 1¾@2c
Waterers, Hog—
Improved Dewey. ₱ doz $30.00.....50%
Wedges—
Oil Finish.....lb. 2.90@3.10c
Weights—
Hitching—
Covert's Saddlery Works.....60&10%
Sash—
Per ton, f.o.b. factory:
Eastern District.....$26.00
Western, Central and Southern Districts.....$27.00
Wheels, Well—
8-in., $1.6 @1.80; 10-in., $2.00@2.25; 12-in., $2.45@2.65; 14-in., $4.00@4.25
Wire and Wire Goods—
Bright and Annealed:
6 to 9.....72½&5@72½&10%
10 to 18.....72½&10@72½&10&5%
19 to 26.....75&10@75&10@75&10&7½%
27 to 36.....75&10@75&10@80&2½%
Galvanized:
6 to 18.....70@70&5%
19 to 26.....72½&5@72½&10%
27 to 36.....72½&10@72½&10&5%
Coppered:
6 to 9.....70&5@70&10%
10 to 18.....70&10@70&10&5%
19 to 26.....75&7½@75&10&2½%
27 to 36.....75&10@75&10&5%
Tinned:
6 to 14.....75@75&7½%
15 to 18.....72½&7½@75%
19 to 26.....70&5@70&5&5%
27 to 36.....70@70@5%
Annealed Wire on Spools...70@70&5%
Brass and Copper Wire on Spools. 60@60&5%
Brass, list Feb. 26, '96.....20@30%
Copper, list Feb. 26, '96.....15%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to £. 40%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*
Bright Wire Goods—
List April 1, 1901.....85&10@10@90%
Wire Cloth and Netting—
Galvanized Wire Netting . .80&10%
Painted Screen Cloth per 100 ft. $1.15
Light Hardware Grade :
2-8 Mesh, Plain (8c. list) sq. ft... 1¾@2c
2-8 Mesh, Galv. (8c. list) sq ft..2½@2¾c
Wire, Barb—See *Trade Report.*
Wrenches—
Agricultural .....80@80&10%
Baxter Pat'rn S Wrenches 70&5@70&10%
Drop Forged S.....45@45&5%
Acme .....60&10%
Alligator.....70%
Alligator Pattern.....70%
Bull Dog.....70%
Bemis & Call's:
Adjustable S.....35&5%
Adjustable S Pipe.....40%
Brigg's Pattern.....30&10%
Combination Black.....40&5%
Combination Bright.....40%
Cylinder or Gas Pipe.....55%
Extra Heavy.....45%
Merrick's Pattern.....50%
No. 3 Pipe, Bright.....55%
Boardman's.....33⅓%
Coes' Genuine.....40&10&5&5%
Coes' "Mechanics'".....40&10&10&5&5%
Donohue's Engineer.....40&10%
Dudly Auto..... .....50&5@50&10%
Eagle.....50&10%
Elgin Wrenches.....40%
Elg'n Monkey Wrench Pipe Jaws...33⅓%
Gem Pocket 30%
Hercules.....70%
W. & B. Machinist:
Case lots.....50&10%
Less than case lots.....50&5%
Improved Pipe (W & B.).....60%
Solid Handles, P. S. & W .... . 50@50&5%
Stillson.....65%
Triumph.....60&10%
Vulcan Chain.....50%
Fruit Jar—
Triumph Fruit Can Wrenches, ₱ gro. $19.20
Syrup Cap Wrenches.....₱ gro. $8.00
T & B Fruit Jar Wrenches. ₱ gro $16.50
T & B Fruit Jar Holders. ₱ gro. $30.00
30%
Wrought Goods—
Staples, Hooks, &c., list March 17 '92.....90@90&5%
Yokes Neck—
Covert Saddlery Works, Trimmed....70%
Covert Saddlery Works, Neck Yoke Centers.....70%
Yokes, Ox, and Ox Bows—
Fort Madison's Farmers & Freighters'.. list net
Zinc—
Sheet.....lb 7 @7¼¢

PAINTS, OILS AND COLORS

White Lead, Zinc, &c.
Lead, English white, in Oil.... 7¼@ 9%
Lead, American White, in Oil:
Lots of 500 ℔ or over..... ..@ 6¾
Lots less than 500 ℔..... ..@ 7¼
Lead, White, in oil, 25 ℔ tin pails, add to keg price..... ..@ ⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price..... ..@ 1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price... ..@ 1¼
Lead, American, Terms: For lots 12 tons and over ½¢ rebate; and 2% for cash if paid in 15 days from date of invoice; for lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice, for lots of less than 500 lbs. net.
Lead White, Dry in bbls..... 5¾@ 6¼
Zinc, American, dry..... ₱ ℔ 4¾@ 4¾
Zinc, Paris, Red Seal, dry..... .. @ 8%
Zinc, Paris, Green Seal, dry..... .. @ 9½
Zinc, Antwerp Red Seal, dry... .. @ 7%
Zinc, Antwerp, Green Seal, dry .. @ 8%
Zinc, V. M. French, in Poppy Oil, Green Seal:
Lots of 1 ton and over.....12 @12¼
Lots of less than 1 ton.....12¼@12¾
Zinc, V. M French, in Poppy Oil, Red Seal:
Lots of 1 ton and over.....10¾@11¼
Lots of less than 1 ton.....11 @11½
DISCOUNTS.—V. M. French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%.
Dry Colors.
Black, Carbon.....₱ ℔ 5 @10
Black, Drop, Amer..... 4 @ 6
Black, Drop, Eng..... 5 @15
Black, Ivory..... 15 @20
Lamp, Com..... 4½@ 6
Blue, Celestial.....₱ ℔ 4 @ 6
Blue, Chinese..... 29 @33
Blue, Prussian..... 27 @30
Blue, Ultramarine..... 3½@15
Brown, Spanish..... ½@ 1
Brown, Vandyke, Amer..... 1¾@ 2½
Brown, Vandyke, Foreign..... 2½@ 3½
Carmine, No. 40.....₱ ℔ $2.25@2.50
Green, Chrome, ordinary..... 3½@ 6
Green, Chrome, pure..... 17 @25
Lead, Red, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over..... ..@ 6¾
Lots less than 500 ℔..... ..@ 7¼
Litharge, bbls. ¼ bbls. and kegs:
Lots 500 ℔ or over..... ..@ 6¾
Lots less than 500 ℔..... ..@ 7¼
Ocher, French Washed..... 5 @ 7
Ocher, Dutch Washed..... 5 @ 7
Ocher, American.....₱ ton $10.00@14.00
Orange Mineral, English..₱ ℔ 8¾@ 9½
Orange Mineral, French..... 10½@11¼
Orange Mineral, German..... 8 @9½
Orange Mineral, American .... 8¾@ 8½
Red, Indian, English..... 4½@ 8½
Red, Indian, American ..... 3 @ 3¼
Red, Turkey, English..... 4 @ 6
Red, Tuscan, English..... 7 @10
Red, Venetian, Amer..₱ 100 ℔. 50@1.50
Red Venetian, English, ₱ 100 ℔. 1.25@ 1 75
Sienna, Italian, Burnt and Powdered.....₱ ℔ 3 @ 6½
Sienna, Ital., Raw, Powd..... 3 @ 4½
Sienna, American, Raw..... 1½@ 2
Sienna, American, Burnt and Powdered .....₱ ℔ 1½@ 2
Talc, French.....₱ ℔ 2 @ 2½
Talc, American..... .90 @1.10
Terra Alba, French, ₱ 100 ℔ . 95 @1.00
Terra Alba, English ..... .95 @1.00
Terra Alba, American No. 1....85 @85
Terra Alba, American No. 2....45 @50
Umber, Turkey, Bnt. & Pow.₱ ℔ 2½@ 3½
Umber, Turkey, Raw & Powd. 2½@ 3½
Umber, Bnt. Amer..... 1½@ 2
Umber, Raw, Amer..... 1½@ 2
Yellow, Chrome ..... 11 @14
Vermilion, American Lead.....10 @40
Vermilion, Quicksilver, bulk ... @70
Vermilion, Quicksilver, bags..... @71
Vermilion, English, Import.. .80 @85
Vermilion, Chinese.... . .$1.05@1.20
Colors in Oil.
Black, Lampblack..... 13 @14
Blue, Chinese..... 36 @40
Blue, Prussia ..... 32 @36
Blue, Ultramarine..... 13 @16
Brown, Vandyke..... 11 @14
Green, Chrome..... 10 @15
Green, Paris..... .. @24
Sienna, Raw..... .12 @15
Sienna, Burnt..... 13 @15
Umber, Raw..... 11 @14
Umber, Burnt..... 11 @14
Miscellaneous.
Barytes, Foreign, ₱ ton....$19.00@21.00
Barytes, Amer. floated..... 18.50@20.00
Barytes, Crude, No. 1..... 9.00@10.00
Chalk, in bulk.....₱ ton 3.25@ 3.50
Chalk, in bbls.....₱ 100 ℔ ..@ 35
China Clay, English..₱ ton 11.00@17.00
Cobalt, Oxide.....₱ 100 ℔ 2.00@ 2.65
Whiting, Common. ₱ 100 ℔ .48@ .55
Whiting, Gliders..... .62½ .68
Whiting, extra Gliders'.... .66@ .72
Putty.
In bladders.....1¾@2¼
In bulk.....1¼@2
In cans 1 ℔ to 5 ℔..... .....2½@4¼
In cans 12 ½ ℔ to 25 ℔..... .....1¼@2¼
Spirits Turpentine.
In Oil bbls.....40½@50 ¢
In machine bbls.....50 @50½¢
Glue.
Cabinet.....₱ ℔ 11½@16
Extra White.. .....18 @33
French.....12 @40
Irish.....13½@16
Low Grade.....9 @12
Medium White.....14½@16½
Animal, Fish and Vegetable Oils.
Linseed, City, raw.....₱ gal..40 @ 41
Linseed, City, boiled..... 42 @43
Linseed, State and West'n, raw 37 @38
Linseed, raw Calcutta seed....75 @ ..
Lard, Prime..... 70 @71
Lard, Extra No. 1..... ....56 @58
Lard, No. 2..... 44 @45
Cotton-seed, Crude, f.o.b mills.30 @33½
Cotton-seed, Summer Yellow, prime..... 41½@42½
Cotton-seed Summer Yellow, off grades..... 37½@38
Sperm, Crude..... .. @ ..
Sperm, Natural Spring..... 67 @68
Sperm, Bleached Spring..... 68 @69
Sperm, Natural Winter..... 70 @72
Sperm, Bleached Winter..... 72 @74
Tallow, Prime..... 55 @56
Whale, Crude..... .. @ ..
Whale, Natural Winter..... 46 @47
Whale Bleached Winter..... 48 @49
Menhaden, Brown, Strained.. .31 @32
Menhaden, Light Strained..... 32 @33
Menhaden, Bleached Winter...34 @35
Menhaden, Ex Bleached Winter 36 @37
Cocoanut, Ceylon..... . 5¼@ 5¾
Cocoanut, Cochin..... 5¾@ 6¼
Cod, Domestic..... 37 @38
Cod, Newfoundland..... 42 @43
Red Cod ne ..... 45 @46
Red Saponified.....₱ ℔ 4¼@ 4½
Olive, Italian, bbls..... 52 @ 57
Neatsfoot, prime..... 57 @58
Palm, prime, Lagos.....₱ ℔ 5¾@ 6
Mineral Oils.
Black, 20 gravity, 25@30 cold test.....₱ gal. 13 @14
Black, 29 gravity, 15 cold test. 13½@14½
Black, Summer ..... 12½@13½
Cylinder, light filtered..... 20½@21½
Cylinder, dark filtered..... 18½@19½
Paraffine, 903-907 gravity..... 15 @15½
Paraffine, 903 gravity.. ..... 14 @14½
Paraffine, 883 gravity ..... 11½@12
Paraffine, red, No. 1..... 15 @15½
In small lots ¼¢ advance.

CURRENT METAL PRICES.

JULY 15, 1903.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Refined Iron:
1 to 1⅞ in. round and square ..... ₱ lb. .... @2.10¢
1½ to 4 in. x ⅜ to 1 in. ..... ₱ lb. .... @2.30¢
1½ to 4 in. x ¼ to 5-16 ..... ₱ lb. .... @2.30¢
Rods—⅜ and 11-16 round and square. ₱ lb. .... @2.30¢
Angles: Cts ₱ lb.
3 in. x ¼ in. and larger ..... 2.30¢
3 in. x 3-16 in. and ⅛ in. ..... 2.55¢
1½ to 2½ in. x ¼ in. ..... 2.35¢
1½ to 2¾ in. x 3-16 in. and thicker ..... 2.30¢
1 to 1¼ in. x 3-16 in. ..... 2.35¢
1 to 1¼ x ⅛ in. ..... 2.40¢
⅞ x ¼ in. ..... 2.55¢
⅝ x ¼ in. ..... 2.65¢
⅝ x ⅛ in. ..... 3.45¢
⅛ x 3-32 in. ..... 3.95¢
Tees:
1 in. ..... 2.80¢
1¼ in. ..... 2.60¢
1½ in. and larger ..... 2.50¢
Beams ..... 2.50@3.00¢
Channels, 3 in. and larger ..... 2.50@3.00¢
Bands—1½ to 6 x 3-16 to No. 8 ..... ₱ lb. 2.40¢
"Burden's Best" Iron, base price ..... ₱ lb. 2.90¢
Burden's "H. B. & S. Iron, base price ..... ₱ lb. 2.70¢
"Ulster" ..... ₱ lb. 3.15¢
Norway Bars ..... 3.75@4.25¢
Norway Shapes ..... 4.00@4.50¢

Merchant Steel from Store—

per lb

Bessemer Machinery ..... 2.10¢
Toe Calk, Tire and Sleigh Shoe ..... 2.30@3.00¢
Best Cast Steel, base price in small lots ..... 7¢

Soft Steel Sheets—

¼ inch	2.40¢	No. 14	2.70¢
3-16 inch	2.40¢	No. 16	2.80¢
No. 8	2.40¢	No. 18	3.00¢
No. 10	2.50¢	No. 20	3.00¢
No. 12	2.60¢	No. 22	3.10¢

Sheet Iron from Store.

Black.

	One Pass, C. R. Soft Steel	G. R. Cleaned
Nos. 14 to 16	₱ lb. 2.90	3.0 ¢
Nos. 18 to 21	₱ lb. 3.00	3.10¢
Nos. 22 to 24	₱ lb. 3.10	3.2 ¢
Nos. 25 and 26	₱ lb. 3.20	3.30¢
No. 27	₱ lb. 3.30	3.40¢
No. 28	₱ lb. 3.40	3.50¢

Russia, Planished, &c.

Genuine Russia, according to assortment ..... ₱ lb. 11¾@14¢
Patent Planished ..... ₱ lb. A, 10¢; B, 9¢, net.

Galvanized.

Nos. 14 to 16 ..... ₱ lb. 3.24¢
Nos. 18 to 20 ..... ₱ lb. 3.51¢
Nos. 22 to 24 ..... ₱ lb. 3.78¢
No. 26 ..... ₱ lb. 4.05¢
No. 27 ..... ₱ lb. 4.32¢
No. 28 ..... ₱ lb. 4.59¢
No 30 ..... ₱ lb. 5.67¢
No. 20 and lighter, 36 inches wide, 25¢ higher.

Foreign Steel from Store—

Best Cast ..... ₱ lb. 15 ¢
Extra Cast ..... ₱ lb. 18 @ 20 ¢
Swaged, Cast ..... ₱ lb. 16 ¢
Best Double Shear ..... ₱ lb. 15 ¢
Blister, 1st quality ..... ₱ lb. 13 ¢
German Steel, Best ..... ₱ lb. 10 ¢
2d quality ..... ₱ lb. 9 ¢
3d quality ..... ₱ lb. 8 ¢
Sheet Cast Steel, 1st quality ..... ₱ lb. 15 ¢
2d quality ..... ₱ lb. 14 ¢
3d quality ..... ₱ lb. 12 ¢
R. Mushet's "Special" ..... ₱ lb. 46 ¢
" " "Titanic" ..... ₱ lb. 19 ¢
Hobson's Choice XX Extra Best ..... ₱ lb. 35 ¢
Jessop Self Hardening ..... ₱ lb. 45 ¢
Seamans' "Nelson" Steel ..... 40 ¢
Hobson's "Soho" Special Self-Hardening ..... ₱ lb. 43 ¢

METALS—

Tin—

Duty.—Pigs, Bars and Block, Free. Per lb

Banca, Pigs ..... 27¾@28 ¢
Straits, Pigs ..... 27½@28 ¢
Straits in Bars ..... 28 @28⅛¢

Tin Plates—

American Charcoal Plates.

Calland Grade:
IC, 14 x 20 ..... $8.75
IX, 14 x 20 ..... 8.25
Melyn Grade:
IC, 14 x 20 ..... 6.50
IX, 14 x 20 ..... 7.75
Allaway Grade
IC, 14 x 20 ..... 5.50
IX, 14 x 20 ..... 6.60

American Coke Plates—Bessemer—

IC, 14 x 20 ..... 108 lb. ..... $4.70@4.80
IX, 14 x 20 ..... $5.00@6.25

American Terne Plates—

IC, 20 x 28 ..... $9.50
IX, 20 x 28 ..... $11.50

Copper—

Duty: Pig, Bar and Ingot and Old Copper free. Manufactured, 2½¢ ₱ lb.

Ingot—

Lake ..... 14¾@15¢
Casting ..... 14½@14¾¢

Sheet and Bolt—

March 12, 1903. Net.

Prices, in cents per pound. Sheet 30 x 60.

Not wider than	Not longer than	And longer than	64 oz. & over, 50 lb. sheet, 30 x 60 and heavier.	32 oz. to 64 oz., 25 to 50 lb.	24 oz. to 32 oz., 18¾ to 25 lb.	16 oz. to 24 oz., 12½ to 18¾ lb.	14 oz. and 15 oz., 11 to 12½ lb.	12 oz. and 13 oz., 9⅓ to 11 lb.	10 oz. and 11 oz., 7¾ to 9⅓ lb.	8 oz. and 9 oz., 6¼ to 7¾ lb.	Lighter than 8 oz.
Ins.	Ins.	Ins.									
30	72	.....	20	21	21	21	22	23	24	27	30
30	96	72	20	21	21	21	22	24	27	30	
30	.....	96	20	21	21	21	23	27			
36	72	.....	20	21	21	21	23	25	28	31	
36	96	72	20	21	21	21	23	27	30		
36	120	96	20	21	21	22	24				
36	.....	120	20	21	20	23					
48	72	.....	20	21	20	23	25	28	31		
48	96	72	20	21	20	24	26	29			
48	120	96	20	21	23	25	29				
48	.....	120	20	22	24	27					
60	72	.....	20	21	22	24	27	32			
60	96	72	20	21	23	25	30				
60	120	96	20	22	24	27					
60	.....	120	21	23	25	29					
72	96	.....	20	22	24	29					
72	120	96	20	23	26	31					
72	.....	120	21	24	29						
108	96	.....	21	24	27						
108	120	96	22	25	28						
108	.....	120	23	26	30						
wider than 108	.....	112	24	27							
	.....	112	25	26							

Rolled Round Copper, ⅜ inch diameter and over, ₱ lb. 20¢.
Circles, Segments and Pattern Sheets, 3¢ ₱ lb advance over price of sheet Copper required to cut them from.
Cold or Hard Rolled Copper 14 oz. ₱ square foot and heavier, 1¢ ₱ lb over the foregoing prices.
Cold or Hard Rolled Copper, lighter than 14 oz. ₱ square foot, 2¢ ₱ lb over the foregoing prices.
All Polished Copper, 20 in. wide and under, 1¢ ₱ lb advance over the price for Cold Rolled Copper.
All Polished Copper, over 20 in. wide, 2¢ ₱ lb advance over the price for Cold Rolled Copper.

Planished Copper—

1¢ ₱ lb more than Polished Copper.

Copper Bottoms, Pits and Flats—

14 oz. to square foot and heavier, ₱ lb ..... 25¢
12 oz. and up to 14 oz. to square foot, ₱ lb ..... 26¢
10 oz. and up to 12 oz., ₱ lb ..... 27¢
Lighter than 10 oz., ₱ lb ..... 28¢
Circles less than 8 in. diameter, 2¢ ₱ lb additional
Circles over 13 in. diameter are not classed as Copper Bottoms.
Polished Copper Bottoms and Flats, 1¢ ₱ lb extra.

Copper Wire—

Hard and Soft Drawn—B. & S. Gauge.
List Feb. 20, 1901.

Nos.	0000 to 3 Base	4 and 10		11 and 12
		¼¢		¼¢ ₱ lb adv.
Nos.	13	14	15	
	1¢	¾¢	1¢	1¼¢ ₱ lb adv.
Nos.	17	18	19	20
	1½¢	2¢	2½¢	2¾¢ ₱ lb adv

Seamless Brass Tubes—

Standard always Stubs' gauge, unless otherwise ordered.
Feb. 6, 1899. Net. Outside Diameter.

Stubs' W.G.	B. & S. W.G.	¼	5-16	⅜	7-16	½	9-16	⅝	¾	⅞	1	1¼	1½
4-11	3- 9	...	...	...	.....	33	31	30	29	28	27	25	24
12	10	...	.....	37	35	33	31	30	29	28	27	25	24
13	11	...	.....	37	35	33	31	30	29	28	27	25	24
14	12	...	41	37	35	33	31	30	29	28	27	25	24
15	13	...	42	38	36	33	32	31	30	30	28	26	25
16	14	...	43	39	37	34	33	32	31	30	29	26	25
17	15	...	44	41	38	35	34	33	32	31	30	27	26
18	16	51	46	42	39	36	35	34	32	31	30	28	27
19	17	52	47	43	40	37	36	35	34	33	32	30	29
20	18–19	54	49	44	41	39	38	37	36	35	34	32	31
21	20	56	51	46	43	41	40	39	38	37	36	35	34
22	21	57	56	48	44	42	41	40	39	38	37	37	36
23	22	76	61	50	46	44	43	42	41	40	39	39	39
24	23	81	66	53	48	46	45	44	43	41	40	40	41
25	24	86	71	56	51	49	47	46	45	43	43	44	45

Copper Bronze and Gilding Tube, 3¢ ₱ lb additional

Iron Pipe Sizes—Brass

⅛ ¼ ⅜ ½ ¾ 1 1¼ 1½ 2 2½ 3 3½ 4 4½ 5 6 inch
36 32 29 27 21 21 21 21 21 21 21 21 23 25 27 28 ₱ lb

Copper, Bronze or Gilding Tubes, 3¢ ₱ lb additional

Brazed Brass Tubing.

(*To No. 19, inclusive.*) Jan. 6, 1899.
Brown & Sharpe's gauge standard.

			Per lb.
Plain Round Tube, ¾ in. up to 2 in.			$0.35
"	⅜	" ¾ in.	.36
"	½	" ⅝ "	.38
"	⅜	" ½ "	.41
"	5-16	" ⅜ "	.48
"	¼	5-16"	.65
"	3-16	¼"	1.00
"	⅛	3-16"	1.50
Smaller than ⅛ inch			Special
2 inch to 3 inch, to No. 19, inclusive			.35
3 inch			.40
Over 3 inch to 3½ inch, inclusive			.45
Over 3½ inch			.50

Bronze and Copper, advance on Brass List, 3 cents.
Discount from list ⅝ 25%

Roll and Sheet Brass—

(*Brown & Sharpe Standard Gauge.*)

Common High Brass. Wider than and including	In. 2 12	In. 12 14	In. 14 16	In. 16 18	In. 18 20	In. 20 22	In. 22 24	In. 24 26
To No. 20 inclusive	.22	.23	.25	.27	.29	.31	.33	.36
Nos. 21, 22, 23 and 24	.23	.24	.26	.28	.30	.32	.34	.37
Nos. 25 and 26	.23	.24½	.27	.29	.31	.33	.35	.38
Nos. 27 and 28	.23	.25	.28	.30	.32	.34	.33	.39
Common High Brass. Wider than and including	In. 26 28	In. 28 30	In. 30 32	In. 32 34	In. 34 36	In. 36 38	In. 38 40	In. 40
To No. 20, inclusive	.39	.42	.46	.50	.55	.60	.65	*
Nos. 21, 22, 23 and 24	.40	.43	.47	.51	.56	.61	.68	
Nos. 25 and 26	.41	.44	.48	.52	.57	.63	.71	
Nos. 27 and 28	.42	.45	.49	.53	.58	.65	.75	

* Special prices not less than 80 cents.
Add ½¢ ₱ lb additional for each number thinner than Nos. 28 to 38 inclusive. Discount from List 25%

Wire in Coils. List February 26, 1896.

Brown & Sharpe's gauge the standard.	Com. high brass.	Low brass.	Gilt bronze and copper
All Nos. to No. 10, inclusive	$0.23	$0.27	$0.28
Above No. 10 to No. 16	.23½	.27½	.28½
No. 17 and No. 18	.24	.28	.32
No. 19 and No. 20	.25	.29	.33
No. 21	.26	.30	.34
No 22	.27	.31	.35
No. 23	.28	.32	.36
No. 24	.30	.34	.38
No. 25	.32	.36	.40
No. 26	.35	.39	.43
No. 27	.38	.43	.46
No. 28	.42	.46	.51
No. 29	.45	.49	.54
No. 30	.48	.52	.62
No. 31	.51	.55	.67
No. 32	.55	.59	.73
No. 33	.59	.63	.82
No. 34	.64	.68	.95
No. 35	.70	.74	1.30
No. 36	.76	.80	1.50
No. 37	1.00	1.04	1.70
No. 38	1.30	1.34	2.00
No. 39	2.00	2.00	3.25
No. 40	2.60	2.60	5.75

Discount, Brass Wire, 25%; Copper Wire, Nat.
List November 16, 96.
Spring Wire, 2¢ ₱ lb advance.

Tobin Bronze—

Straight, but not turned, Rods, ⅝ to 3 in. diameter, ₱ lb, net ..... 19¢
Finished Piston Rods, ⅝ to 2½ in. diameter, ₱ lb net, 20¢
Other sizes and extreme lengths, special prices.

Spelter—

Duty: In Blocks or Pigs, 1¢ ₱ lb
Western Spelter ..... 6@6¼¢

Zinc.

Duty: Sheet, 2¢ ₱ lb.
No. 9, base casks ..... 7½¢ | Open, per lb ..... 8¢

Lead.

Duty: Pigs and Bars and Old, 2½¢ ₱ lb. Pipe and Sheets, 2½¢ ₱ lb.
American Pig ..... 4½@4⅝¢
Bar ..... 5@5¼¢
Pipe ..... 5¼@5½¢
Tin Lined Pipe ..... 12½¢ ..... 20% off
Block Tin Pipe ..... 37½¢ net
Sheet Lead ..... 6@6¼¢
Old Lead in exchange, 3¼¢ ₱ lb

Solder.

½ & ½, guaranteed ..... 18½@19 ¢
No. 1 ..... 16 @ 17½¢
Prices of Solder indicated by private brand vary according to composition.

Antimony—

Duty, ¾¢ ₱ lb.
Cookson ..... ₱ lb 7¾@8 ¢
Hallett's ..... ₱ lb 7 @ .. ¢
U. S. ..... ₱ lb 6¾@ .. ¢

Aluminum—

Duty: Crude, 8¢ ₱ lb. Plates, Sheets, Bars and Rods, 13¢ ₱ lb.
No. 1 Aluminum (guaranteed over 99% pure), in ingot for remelting:
Small lots ..... ₱ lb 37¢
100-lb lots ..... ₱ lb 35¢
No. 2 Aluminum (guaranteed to be over 90% pure), in ingots for remelting:
Small lots ..... ₱ lb 34¢
100-lb lots ..... ₱ lb 33¢
Aluminum Sheet, B. & S. gauge. 50 lb or more

	Wider than 6-in.	14-in.	24-in.	And including 14-in.	24-in.	30-in.
	₱ lb.	₱ lb.	₱ lb.			
Nos. 13 to 19	$0.42	$0.44	$0.47			
No. 20	.44	.46	.49			
Nos. 21 to 23	.46	.48	.51			
No. 24	.46	.50	.53			
No. 25	.47	.51	.54			
No. 26	.47	.54	.59			
No. 27	.48	.57	.62			
No. 28	.48	.57	.64			
No. 29	.49	.60	.69			
No. 30	.50	.64	.77			

Note.—Lots of less than 50 lb 5¢ ₱ lb extra.
Aluminum Wire, B. & S. Gauge.
Larger than No. 9, ₱ lb 40¢ | No. 15 ..... ₱ lb 43¢
No. 9 to No. 10 ..... ₱ lb 40½¢ | No. 17 ..... ₱ lb 50¢
No. 11 ..... ₱ lb 41 ¢ | No. 18 ..... ₱ lb 55¢
No. 12 ..... ₱ lb 41½¢ | No. 19 ..... ₱ lb 60¢
No. 13 ..... ₱ lb 42 ¢ | No. 20 ..... ₱ lb 65¢
No 14 ..... ₱ lb 43½¢ | No. 21 ..... ₱ lb 85¢

Old Metals.

Dealers' Purchasing Prices Paid in New York.

Heavy Copper ..... ₱ lb 11⅛¢
Light and Tinned Copper ..... ₱ lb 10¼¢
Heavy Brass ..... ₱ lb 7¾¢
Light Brass ..... ₱ lb 6 ¢
Lead ..... ₱ lb 3½¢
Tea Lead ..... ₱ lb 3¼¢
Zinc ..... ₱ lb 4 ¢
No. 1 Pewter ..... ₱ lb 18 ¢
No. 2 Pewter ..... ₱ lb 8½¢
Pure Aluminum, Sheet, ₱ lb ..... 21¢
Cast Aluminum, ₱ lb ..... 16¢
Tin Plate Scrap ..... ₱ ton $4.50@5.50
Wrought Scrap Iron ..... ₱ gross ton $11.00@14.50
Heavy Cast Scrap ..... ₱ gross ton $13.50@14.00
Stove Plate Scrap ..... ₱ gross ton $8.00@ .50
Burnt Iron ..... ₱ gross ton $7.50@ 8.00